11

Chapter 11 - Community Impacts

The assessment of community impacts depends on identifying:

- the affected communities and types of impact
- short-term construction impacts, as well as long-term impacts
- ways to mitigate impacts
- ways to ensure that mitigation methods are followed through.

This chapter discusses a range of potential community impacts, and methods for mitigating these impacts.

Affected Communities

The affected communities can be divided into three categories. The potential impacts experienced by each community and the appropriate mitigation measures that might be applied vary by category.

Communities close to the power plant site

Communities closest to the site may experience increased noise, dust, traffic problems, and visual impacts. Communities more than one-half mile away are usually too far from a power plant site to experience most of these impacts, but there exceptions, especially with respect to visual impacts along the lakeshore.

Communities considered to be close to the power plant site include: homes along Elm Road, Barton Road, and Studio Lane in the Barton Oaks Subdivision, three private properties surrounded by WEPCO-owned land, and scattered housing closest to the proposed plant sites. More information about impacts specific to these properties is found in the section on Residential Impacts.

Communities close to associated facilities

Affected communities may be located not only near the power plant site, but near one of the facilities providing fuel to the site, locations where waste from the plant is disposed, along delivery routes, or near the electric transmission lines delivering power from the site.

For the ERGS proposal, some of the primary community concerns involve potential impacts related to these auxiliary facilities. For example, regardless of site, train traffic would increase along the Union Pacific (UP) Railroad, south of the site. Changes to the electric system would involve rebuilding of existing transmission

lines and the construction of one, new 345 kV line about four miles long. More information about how communities could be affected by these facilities can be found on the sections on Railroads and Electric Transmission Lines.

The larger community

Power plants may also affect communities at a distance through the need for increased services, such as water supply, or through shared revenue payments. Refer to the sections on potential impacts to Municipal Services and Shared Revenue payments for the city of Oak Creek and the town of Caledonia.

The entire OCPP property is divided by the boundary between Milwaukee and Racine counties. One of the proposed sites (North Site) is in the city of Oak Creek, while the other sites (South Site and South Site-Exp) are in the town of Caledonia. The proposed transmission line is in the town of Caledonia, and construction related to proposed rail changes would occur in the town of Caledonia.

Site History

Before beginning the discussion of potential community impacts, some general background information about the site and the demographics of the local communities are provided.

The history of the Oak Creek site is a part of the history of the city of Oak Creek. Construction of the first unit of the OCPP began in 1950. Because the power plant was considered a "financial plum," its construction was one of the factors that led to the transformation of the town of Oak Creek into the city of Oak Creek.[115] Before that, the site was agricultural since at least the 1930's.

OCPP generating units

Table 11-1 lists the coal units built as part of the OCPP over time. Refer to Figure 6-2 for their location.

WEPCO has no current plans to retire any of the active units. A generating unit usually has about a 40-year life for accounting purposes. However, with proper maintenance and upgrades, it is not unusual for a plant to operate far beyond this timeframe.

Landfills on site

The site has served as a landfill for the OCPP ash. There are three landfills on the Oak Creek site. Refer to Figure 6-2. These are the:

[115] From "Birth of a City" by Carolyn Haack, 1996.

Table 11-1 History of generation construction at the OCPP

Plant	Size	In Operation	Retired	
North Oak Creek Plant				
Unit 1	125 MW	1953	1989	The building that housed these units is currently used to support coal handling facilities
Unit 2	125 MW	1954	1989	
Unit 3	125 MW	1955	1988	
Unit 4	125 MW	1957	1988	
South Oak Creek Plant				
Unit 5	275 MW	1959	Active	
Unit 6	275 MW	1961	Active	
Unit 7	310 MW	1965	Active	
Unit 8	310 MW	1967	Active	
Internal Combustion Unit				
Unit 9	Primarily natural gas-fired; can also burn diesel	1969	Used about 3 hours/day on 24 days per year	

- North Landfill (located east of the Union Pacific Railroad tracks, across from the Barton Oaks Subdivision)
- South Landfill (located behind the buffer south of Haas Park, on Elm Road)
- Caledonia Landfill (located in Racine County, south of the existing plant)

The Caledonia Landfill is the only one still active. WEPCO periodically trucks ash stockpiled at this landfill to the Pleasant Prairie power plant, the newest WEPCO coal plant built in Wisconsin. This plant can burn, for fuel, any of the ash currently in landfills on the Oak Creek site. The proposed ERGS units could also burn this ash, and thus trucking of this ash would stop after the new plant is operational.

Pollution control upgrades

During the late 1980s, WEPCO installed new electrostatic precipitators on Units 7 and 8 in order to reduce particulate emissions. During the early 1990s, WEPCO installed low NO_x burners on Units 7 and 8 in order to reduce NO_x emissions.

During the mid to late 1990s, WEPCO installed equipment to allow the burning of 100 percent Powder River Basic Coal (PRB) in Units 7 and 8, and 60 percent PRB in Units 5 and 6. This reduced emissions of SO_2 and NO_x.

WEPCO started various NOx projects in 2000 that are scheduled for completion in 2005. These include installing new, low-NO_x burners and electronic control systems on Units 7 and 8, and equipment upgrades and new electronic control systems to enable Units 5 and 6 to burn 100 percent PRB coal. These projects will further reduce both NO_x and SO_2 emissions.

WEPCO-owned property

WEPCO has acquired surrounding land over the years, not only to provide room for its generating facilities, but also to provide a buffer zone between the plant and future urban development. Almost all houses

closest to the WEPCO site, including those in the Oak View #3 and Barton Oaks subdivisions were built after the existing OCPP. WEPCO also purchased corridors for transmission lines from the plant.

WEPCO owns about 1,084 acres, and is in the process of acquiring about 168 acres, for a total of about two square miles (1,252 acres) of contiguous property in the city of Oak Creek and the town of Caledonia, with about half of it in the city of Oak Creek and about half in the town of Caledonia. WEPCO's property includes most of the land bounded by Lake Michigan, Seven Mile Road, STH 32, and Elm Road. It also includes most land between the Barton Oaks Subdivision in Oak Creek and Lake Michigan. See Figure 11-1.

Land in this area, not currently owned by WEPCO, includes:

- Haas Park on Elm Road (donated to the city by WEPCO)
- a small cemetery along STH 32
- a federal/state shooting range
- a horse farm north of Seven Mile Road (being sold to WEPCO)
- Three properties, each with a house and barn, located north of Seven Mile Road and east of the railroad
- One property with a house, located north of Seven Mile Road and west of the railroad
- One business on the northeast corner of Seven Mile Road and STH 32

WEPCO is negotiating to acquire the horse farm north of Seven Mile Road. It has also signed an agreement with the Department of Military Affairs, so that if the Commission approves the South Site-Exp, the shooting range would be moved south onto the current horse farm property, and WEPCO would acquire the current shooting range property for placement of the IGCC facility.

WEPCO manages the land not used for power plant-related facilities as natural areas (wetland, woodland, grassland), or leases it as farmland. It also rents out several houses located on the property.

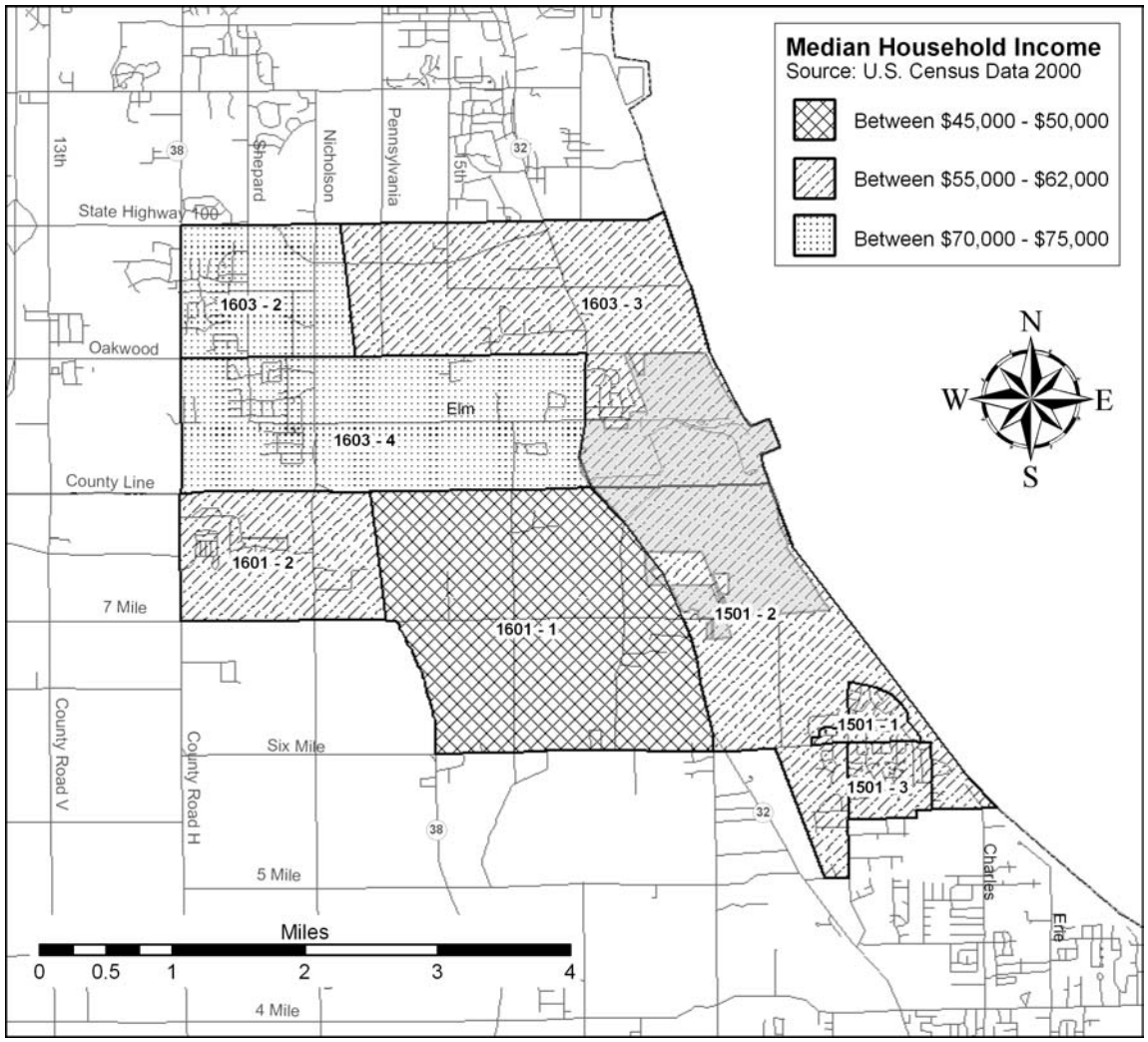
Figure 11-1 WEPCO-owned land

Community Characteristics

Demographics

PSC staff reviewed the data from the 2000 U.S. Census for eight census tract block groups for the area surround the proposed ERGS project site. The area was examined for median household income and race for the region located between two and four miles from WEPCO's property. Refer to Figure 11-2.

Figure 11-2 Ranges of median household income



The data showed that the median household income (in 1999) for the census tract block groups ranged from $47,000 to $74,000 annually. (Refer to Table 11-2.) The median household income for all areas was higher than the state's average median household income of $43,791. Additionally, the predominat race for the area was white, ranging from getween 92.1 to 98.9 percent of the total population.

Table 11-2 Median household income in 1999* (for areas surrounding the OCER sites)

Relation to OCER Sites	Geography	Total Population	Median household income in 1999
Closest Blocks	Block Group 3, Census Tract 1603, Milwaukee County	1266	$61,111
	Block Group 2, Census Tract 15.01, Racine County	1248	$55,500
Next closest block	Block Group 1, Census Tract 15.01, Racine County	1140	$61,620
	Block Group 3, Census Tract 15.01, Racine County	1584	$59,244
Outer blocks	Block Group 2, Census Tract 1603, Milwaukee County	2029	$73,529
	Block Group 4, Census Tract 1603, Milwaukee County	2598	$71,346
	Block Group 1, Census Tract 16.01, Racine County	499	$47,250
	Block Group 2, Census Tract 16.01, Racine County	814	$53,661

* Based on U.S. 2000 census

The average median household income (in 1999) for all areas was $60,408, and the predominant race was white at 97 percent of the total population (see Table 11-3).

Table 11-3 Predominant racial group* (for areas surrounding OCER sites)

Relation to Oak Creek site	Geography	Total Population	White alone	% White
Closest blocks	Block Group 3, Census Tract 1603, Milwaukee County	1,266	1,220	96.4
	Block Group 2, Census Tract 15.01, Racine County	1,248	1,149	92.1
Next closest block	Block Group 1, Census Tract 15.01, Racine County	1,140	1,129	99.0
	Block Group 3, Census Tract 15.01, Racine County	1,584	1,556	98.2
Outer blocks	Block Group 2, Census Tract 1603, Milwaukee County	2,029	1,926	94.9
	Block Group 4, Census Tract 1603, Milwaukee County	2,598	2,472	95.2
	Block Group 1, Census Tract 16.01, Racine County	499	487	97.6
	Block Group 2, Census Tract 16.01, Racine County	814	805	98.9

***based on U.S. 2000 census

Sensitive or vulnerable communities

Traditionally, these communities are defined as concentrations of people who are most susceptible to environmental stress, i.e. hospitals, schools, daycares, and retirement homes. Only one such concentration is located within one-half mile of the power plant site. Oak Crest, an assisted living facility, is about 0.25 mile (about 1,125 feet) northwest of the WEPCO's property boundary.

Additionally, the air quality in Milwaukee and Racine does not meet national ozone standards. The general population in these counties is therefore under respiratory stress during the summer months when ozone levels are particularly high.

Residents nearest to WEPCO-owned property

Figure Vol. 2-20 shows residential areas for a mile or more around the WEPCO-owned property. It does not show actual homes, or number of homes. In some areas, lot sizes are half an acre or more. Residents nearest to the site are most likely to experience the impacts of potential dust, noise, and traffic congestion. Those closest to the proposed site are in the Oak View #3 and Barton Oaks subdivisions, to the north and northwest of the site. As these two subdivisions are contiguous, they're referred to from here on as "the Barton Oaks subdivision." The residences potentially most affected include:

- Fifteen houses on Elm Road (three east of 2nd Avenue, eight between 2nd and 4th Avenue, and four between 4th Avenue and STH 32)
- Fifteen houses on Barton Road (eight houses that back up to the Union Pacific rail track, and seven houses across the street from them)
- Houses on the eastern end of Studio Lane (six houses on the south side of Studio Lane from Barton Road to 2nd Avenue and four houses across from them)

Houses to the south of WEPCO's property and closest to the South Site and the South Site-Exp are on Seven Mile Road, east of STH 32. These include:

- Four houses about a quarter mile north of Seven Mile Road (one owned by WEPCO)
- One house in the woods north of Seven Mile Road
- Five houses south of Seven Mile Road, west of the railroad track
- One house at the end of Seven Mile Road (owned by WEPCO)

On the west side of WEPCO's property, there are houses along STH 32. These include:

- Five houses east of STH 32, all owned by WEPCO (four between County Line Road and Botting Road, and one nearer to the intersection with Seven Mile Road)
- Twelve houses west of STH 32 (eight north of Botting Road and one south of Botting Road)

For residences potentially affected by increases in rail and vehicle traffic, refer to the Railroad and Traffic sections.

Land Use

Existing environment

Refer to Figure Vol. 2-18 for present land uses in the project area. Near WEPCO's property, both the town of Caledonia and the city of Oak Creek are a mix of land uses, including: farm fields, scattered residential and commercial developments, natural areas (woodlots, wetlands, and conservancy – or undeveloped –

parkland), recreation trails, rail corridors (both existing and abandoned), and transmission line corridors. WEPCO's property also supports these land uses. In the town of Caledonia, farmland is more predominant in this mix. The only residential concentration near WEPCO's land is the city of Oak Creek's Oak View #3 subdivision and the Barton Oaks subdivision, which are contiguous and generally referred to as the Barton Oaks subdivision.

Urbanization is spreading into this somewhat rural area, from both the north and south. The city of Oak Creek, in particular, is growing in population and housing. Population grew about 40 percent from 1990 to 2000, with about 2,500 new dwelling units built during that period. In 1999, the town of Caledonia noted a "very stable" grow rate of about 115 people (or 43 households) per year.

Land use plans

The city of Oak Creek adopted a comprehensive land use plan in April 2002. It identified nine planning goals, eight different planning districts, and 16 planned land use categories. The town of Caledonia created its first Planning Commission in 1995. In August 1996, the town adopted a land use plan, later revised in May 1999. Figure Vol. 2- 19 shows a compilation of the planned land uses. This map includes planned land uses for both the city and the town in the area of WEPCO-owned land. It also groups similar land uses (e.g. residential – single family and residential – two family) into categories, although the individual designations are used in the following discussion.

The city's map notes, "Shapes on map represent general recommendations for future land use at "build-out" of the city. Actual boundaries between different land use types and associated zoning districts may vary somewhat from representations on this map." The town of Caledonia map notes, "Plan subject to periodic revisions. Check with Town or Racine County for current updates." May 1999 is the latest update. The city's plan is a "2020 vision." The town's plan guides development through 2010.

Existing land use on WEPCO-owned land

WEPCO owns over 1,000 acres, about half in the city of Oak Creek and half in the town of Caledonia. WEPCO has left some land unused for power facilities and has allowed other land, previously used, to re-vegetate, resulting in areas of natural value. WEPCO-owned land includes 129 acres leased for farming (187 acres if WEPCO acquires a horse farm located on Seven Mile Road). WEPCO owns and rents seven houses east of STH 32: five along the highway between Seven Mile Road and Elm Road, one at the east end of Seven Mile Road, and one to the north of Seven Mile Road. For information on WEPCO-owned natural areas, refer to Chapter 10.

WEPCO's proposed changes to on-site land use

If WEPCO keeps all excavated soil on-site as proposed, 73 of the129 acres of farmland on WEPCO's property would change to grassland or landscape. If the South-Exp site is chosen and all three units are built, WEPCO would move the existing federal/state shooting range south onto what is currently a 58-acre horse farm. Keeping all excavated soil on-site would convert six acres of woodland to grassland or landscape, as well as affecting wetlands and old-field vegetation.

Two units at either the South Site or South Site-Exp would remove 31 fewer acres of farmland and preserve the six acres of woodland.

Refer to Chapter 10 for information on affected woodlands and wetlands. Refer to the section on Fugitive Dust impacts later in this chapter for impacts related to soil excavation and transport. Refer to Appendix E and the discussion in Chapter 12 for information on the effects of the Conditional Use Agreement granted by the city of Oak Creek.

Planned land use on WEPCO-owned land in the city of Oak Creek

Oak Creek's land use plan (Figure Vol. 2-19) identifies most WEPCO-owned land as "Institutional." There are two patches of Limited Development Area[116] located near the center of the site. These appear to correspond to portions of the environmental corridor. There are two areas designated Resource Protection Area,[117] one on STH 32 just south of three homes owned by WEPCO, and one close to Oakwood Road (located within an area identified in Oak Creek plans as Mixed Residential).

Oak Creek's land use plan shows WEPCO-owned land south of Oakwood Road as Mixed Residential near the railroad track and Active Recreation by the lakeshore. Forest and shrub land cover most of this area. Portions of both these planned uses overlay WEPCO's existing North Landfill. The three homes owned by WEPCO along STH 32 are in areas designated as single-family residential area in Oak Creek's plans.

Planned land use on WEPCO-owned land in the town of Caledonia

Caledonia's Land Use Plan identifies much of WEPCO-owned land as Public-Semi Public (refer to Figure Vol. 2-19). There is an environmental corridor located along the southern two-thirds of the lakeshore (between Seven Mile and County Line Road), with two environmental corridors connecting the corridor to the Union Pacific (UP) railroad tracks. In addition, there are at least four scattered natural areas further north, and a natural area on Seven Mile Road between STH 32 and the railroad tracks. North and east of a planned industrial area on STH 32 is another natural area. Refer to Chapter 10 for a discussion of potential on-site impacts to natural areas.

Caledonia plans also include an industrial area along STH 32, west of the UP railroad track. This industrial area starts north of Botting Road and continues south to the northern limit of the Sanitary Sewer Service Area, about 500 feet north of Seven Mile Road. WEPCO owns about half of this property.

On predominantly WEPCO-owned land east of the UP railroad track, continuing to an imaginary line extended north from Michna Road, the Caledonia Plan shows a block of Low-Density Residential land use. Caledonia defines low density as 0.7 to 2.2 dwelling units per acre. This block of land is bounded on the north by the shooting range and on the south by Seven Mile Road. Almost half of this land extends beyond

[116] Limited Development Areas include land in the flood fringe, isolated natural resource areas, natural resources sites, and critical species habitats. Detailed natural resource inventories and management plans are needed where any development is proposed within a property designated as Limited Development Area. Only very low density development is allowed in these areas.
[117] Resource Protection Areas include lands in public ownership, floodway, and wetland.

the Sanitary Sewer Service Area. Within this area are four homes (one owned by WEPCO), and a horse farm that WEPCO is in the process of acquiring. A mix of agriculture, grassland, shrub land, and lawns covers this land.

The Caledonia plan shows Park and Open Space for much of the land east of an imaginary line drawn north from Michna Road. Forest, brush, and grass cover most of this area.

Existing land use – adjacent to WEPCO property

Two county parks, Milwaukee's Bender Park and Racine's Cliffside Park, are located along the lakeshore, immediately to the north and south of WEPCO-owned land. Aside from state and municipal roads, the other land immediately surrounding WEPCO's property is predominantly farmland with scattered residential development. (There are a few commercial buildings and scattered residences in natural areas). The exception is the Barton Oaks Subdivision. The Barton Oaks subdivision (including Oak View #3 and Barton Oaks) is located along STH 32 and Elm Road, with WEPCO property to the south, and the UP Railway and WEPCO property to the east. The subdivision is close to Oakwood Road, on the north side. However, there is an area of farmland and forestland separating it from East Oakwood Road and its houses.

Planned land use – adjacent to WEPCO property

City of Oak Creek

Figure Vol. 2-19 shows a compilation of the city's planned land use, adopted in April of 2002. North of Oakwood Road, planned land use is Mixed Residential west of the UP railroad track, Two-Family/Townhouse Residential east of the track, and then Single Family Residential next to Bender Park. West of STH 32, the planned land use is Single Family Residential, with some Resource Protection Area. (All the residential areas are shown as one color on Figure Vol. 2-20).

In the city of Oak Creek, areas zoned as Single-Family Residential can vary from 2.0 dwelling units per net acre to 5.4 dwelling units per net acre. Areas zoned as Two-Family Residential cannot exceed 5.8 dwelling units per net acre. However, the April 2002 Summary of Volume III Plan Recommendations (Plan Summary) includes, "Adopt ordinance changes and new zoning districts to encourage innovative housing projects and subdivisions, such as condominiums near the lakeshore, mixed residential/retail buildings, cluster subdivisions, and traditional neighborhoods."

At the intersection of STH 32 and Oakwood Road and continuing south is an area planned for neighborhood business. There is a similar small area surrounding the intersection of STH 32 and Elm Road. For the most part, these reflect existing land uses.

Town of Caledonia

Figure Vol. 2-19 shows a compilation of the town's planned land use, approved in May 1999. Planned land use is commercial for the properties at the northeast and southeast corners of the intersection of Seven Mile Road and STH 32. The woods with the house north of Seven Mile Road, between STH 32 and the rail line, as well as an area along both sides of the northern portion of Michna Road (also with scattered houses), are delineated as natural areas. Other land east of STH 32 and south of Seven Mile Road is shown as Low-

density Residential (0.7 to 2.2 dwelling units per acre.) Along the UP railroad track is a bike trail, and along part of the trail is an area designated as an environmental corridor. West of STH 32, the land use plan has country lots (at 0.2 dwelling units per acre), except for a stretch north of Seven Mile Road. That stretch, and south of Seven Mile Road on both sides of STH 32 is an area shown as predominantly low-density residential.

Potential conflicts with land use plans

Existing land uses and land use plans have developed around WEPCO's existing OCPP. Because the applicants are proposing new units at an existing power plant site, the potential for land use conflicts should be minimal, if the new generation facility is properly designed. In addition, WEPCO-owned land extends beyond the amount of land needed for any of the sites. This allows for the use of distance and berms to buffer adjoining land uses from the industrial nature of electric generation.

WEPCO's decision to keep any land unused for generation facilities in a natural state fits in with the city's and town's intent to keep the appearance of this area as rural as possible. The city of Oak Creek's plan foresees rapid development. However, the residential areas planned in the vicinity of WEPCO's land would be extremely low-density. The summary of the town of Caledonia plan, while listing a loss of 9,603 acres by 2010 (from 1999) states, "The change in Agricultural land (2010) is somewhat misleading because the "Country Lot" area will remain an agricultural area, functionally and visually."

Both the city and the town land use plans attempt to guide development to avoid important resource areas, such as waterways, floodways, wetlands, and environmental corridors. The applicants have stated that they designed the proposed power plant layout so as to minimize impacts to resource areas on WEPCO-owned property. Descriptions of these resource areas and potential impacts are in Chapter 10.

Both parklands and power plants are common uses for the shoreline of Lake Michigan. There are eight power plants, in addition to the OCPP facility, located on the Wisconsin shoreline of Lake Michigan. There are also numerous state and county parks. The areas of WEPCO-owned land adjacent to the two main county parks are undeveloped, and the areas of the two main county parks adjacent to WEPCO-owned land are similarly undeveloped.

Roads bound WEPCO's property. On its western boundary, STH 32 is planned for expansion to a divided four-lane highway. Money has been placed (and taken out of) past budgets to accomplish this.

The UP railroad tracks cross WEPCO's property. In the past, train traffic on this line was much higher, and there were two tracks instead of one. Plans are going forward to increase rail traffic on this line, in addition to the increase caused by coal delivery.

Lakeview Village Concept Plan

One of the planning districts in the city of Oak Creek's Growth Concept Plan, is the Lakeview Village Mixed Use District. This district is adjacent to WEPCO-owned land, because it includes plans for Bender Park. It also suggests the possible expansion of Bender Park onto what is currently WEPCO-owned property. The city of Oak Creek has expressed concerns about potential land use conflicts between this proposed

development and the ERGS proposal. In particular, the concerns center on a possible Championship Golf Course north of Fitzsimmons Road, a possible clubhouse/restaurant on the south side of Fitzsimmons Road, and high-priced residential areas north of Ryan Road or possibly between Oakwood and Fitzsimmons Road and west of Bender Park. For further discussion of potential conflicts with the golf course, see the Recreation section later in this chapter.

Description of the Lakeview Village Mixed Use District

The land from Elm Road north to Puetz Road, from about STH 32 to the lakeshore, is part of the Lakeview Village Mixed Use District for which there is a Concept Plan. (The Plan Summary contains an illustration of this Concept Plan.) The Plan Summary states, "This District is located along the Lake Michigan shoreline and contains Bender Park. Recommendations include completing Bender Park, opening up lakeshore access, redeveloping Carollville as a mainly residential neighborhood, and creating a mixed use village center with retail and residential uses." Table 11-4 includes the descriptions for six areas identified in the plan.

Development Agreement

The Development Agreement signed by the city of Oak Creek and WEC on April 3, 2003 includes a provision that may address the city of Oak Creek's concerns about the potential impact of WEPCO's proposal on the Lakeview Village Concept Plan. Refer to items 2A and 2B in the Development Agreement, which is located in Appendix E.

Table 11-4 Some elements of the Lakeview Village District Concept Plan

Office Transition Area	
	Corporate or neighborhood offices
	Orient buildings east-south
	Transition between neighborhood and treatment plant
Carolville Neighborhood	
	Park as neighborhood focal point
	Residential redevelopment and expansion
	Strong green space connection to Lake Michigan
	Small scale neighborhood businesses
	Possible sites for institutional (i.e. church)
Lakeview Center	
	Connect STH 100 to Lake Michigan
	Strong public/civic lakefront identity
	Possible hotel/convention center site
	High-rise residential
	Lake oriented commercial destination
	Brownfield clean-up
	Bluff regrading & stabilization
Bender Park	
	Complete park development
	Championship golf course
	Possible marina
	Compatible development on adjacent properties
Transit Oriented Center	
	Multi-modal transit center
	Civic space

Office Transition Area	
	Mixed use
	Park & ride facility
	Urban character
Highway 100 Gateway Area	
	Maintain open space character along highway
	Larger scale commercial (i.e. grocery)
	Entry feature (signage, landscaping)

Zoning

Because the city of Oak Creek is a rapidly developing urban/suburban area, the city's codes are more specific than those for the town of Caledonia, which primarily identify the goals of different zoning districts. Both the city of Oak Creek and the town of Caledonia include provisions in their codes that allow land uses that existed at the time the codes were adopted, regardless of zoning. For the proposed project, the applicants would need conditional use variances from the city of Oak Creek and Racine County (with the approval of the town of Caledonia). Both the city (and town) could place special conditions on the ERGS project as part of the conditional use permit. These conditions could include a variety of items, such as noise standards, construction hours, and lighting.

On June 3, 2003 in Ordinance 2251, the city of Oak Creek granted WEPCO a conditional use permit (CUP) for the proposed project if built at the North Site. For construction at the South Sites, the applicants would need conditional use variances from Racine County (with the approval of the town of Caledonia). The city of Oak Creek placed special conditions on the proposed project as part of the CUP. These conditions include a variety of items, such as noise standards, construction hours, and lighting. A CUP in Racine County could impose similar condtions. Refer to Appendix E and Chapter 12 for more details about the CUP Option

The existing zoning for both the city and town does not reflect existing, long-term land uses, nor does it necessarily match city and town land use plans. It appears that the primary purpose of current zoning is to provide public notice and review of major projects, and to allow city and town officials to make sure that these projects meet local codes.

Zoning on WEPCO-owned property

Oak Creek

On June 3, 2003, the city of Oak Creek approved the rezoning of WEPCO's land along East Elm Road and East Oakwood Road to manufacturing (M-1). WEPCO property is currently zoned manufacturing south of East Oakwood Road, except for some Residential zoning along STH 32, where WEPCO owns and rents a few houses. In Oak Creek, WEPCO property is zoned Manufacturing south of Elm Road, except for some Residential zoning along Highway 32, where WEPCO owns and rents a few houses, the cemetery on STH 32, and Haas Park. WEPCO-owned property north of Elm Road is a mixture of zoning categories, including Park District (along the lake), Manufacturing (across from the Barton Oaks Subdivision), Agriculture, and Residential (along the UP railroad track). The Liquid Natural Gas storage tank is located on

land that is zoned for Manufacturing. The existing fly ash landfill is on land zoned Manufacturing, Agriculture, and Park District.

Caledonia

In Caledonia, WEPCO-owned property is zoned Agricultural, even though this area contains rail unloading facilities, electric transmission lines, and other industrial uses. This area also includes some natural habitat, as well as farmland. The northern 1,300 feet along the Lake Michigan shoreline is in the Structural Setback Overlay (SSO) District. This district requires all new development to be protected by erosion control measures. The SSO District may apply to the South Site and the South Site-Exp.

Zoning adjacent to WEPCO-owned property

Oak Creek

North of WEPCO property, Bender Park is zoned as Park District. In addition to Bender Park, the city has two properties zoned as Park District. One is west of STH 32, about halfway between Elm Road and Oakwood Road. The other is Haas Park, located south of Elm Road. Land is zoned Agriculture to the northwest of WEPCO's land. Property to the west of WEPCO's land is zoned Residential and Agriculture. The intent of Oak Creek's zoning for Agriculture is "to protect lands from urban development until their orderly transition into urban-oriented districts is required."

There are also about five areas zoned for Business within one-half mile of WEPCO-owned land. Four of these are along or close to STH 32 and one is on East Oakwood Road.

Two small areas within one-half mile are zoned Residential – Two Family. One of these is located at the northeast intersection of Elm Road and STH 32. The other is on East County Line Road about one-half mile west of STH 32. In addition, the Oak Creek Fire Station and the small cemetery on STH 32 are zoned Institutional.

Caledonia

In Caledonia, all land is zoned Agriculture to the west and south of WEPCO-owned land, except for Park District along the lakeshore.

Primary environmental corridor

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) has identified land referred to as Primary Environmental Corridor. These are elongated areas in which concentrations of recreational, aesthetic, ecological, and cultural resources occur. This designation does not have the force of zoning, but is a guideline for development. An environmental corridor extends from the town of Caledonia onto WEPCO-owned land. Don Reed of SEWRPC conducted an investigation on WEPCO-owned land to determine the exact location of the environmental corridor. Chapter 10 describes the potential impacts to these resources.

Municipal authority and influences over the proposed project

Local governments, from counties to villages, have an important role in the design of any proposed power plant. The tools are negotiation (contracts), zoning, and administrative codes covering aspects of land development and building construction. The subjects addressed by local governments cover a wide range of topics important to local communities. They cover payments to the locality, both outside the revenue sharing statute (direct payments, payments for new municipal facilities to offset increased use of municipal services), and within the revenue sharing statutes (negotiations as to depreciation rates). They cover noise levels, drainage, commuting times, lighting, and landscaping.

On April 2, 2003, the city of Oak Creek entered into a tentative agreement with WEC (see Appendix E for a copy of the agreement). Topics that are covered by the agreement include air emissions, annual payments beyond monies which the city would receive as shared revenue payments, and funds to develop existing brownfield sites in the city.

On June 3, 2003 in Ordinance 2251, the city of Oak Creek issued a CUP for construction and operation of the proposed facilities to be built on the North Site. The conditions of this CUP are shown in Appendix E.

Proposed Construction and Operation Schedule

Most of the impacts to surrounding communities would occur during the construction period. This is when the potential for noise, traffic, and dust would be at its highest. Table 11-5 shows the activities and construction schedule that the applicants list in its application. Many of these dates are not accurate, and the length of certain activities is only an estimate. The length of the construction period depends somewhat on how many coal units are approved and built. The expected construction periods are: a minimum of four years for one unit, six years for two units, and eight years for three units.

The applicants recently updated the construction schedule and increased the estimated number of workers employed during the construction period. However, this data requires clarification and will be included in the final EIS.

Table 11-5 Site activity

Year	SCPC Unit 1	SCPC Unit 2	IGCC
2004	Earthwork (12 months) Common facilities (31 months) Rail upgrades (34 months) Material handling (54 months)		
	Transmission Phase I (47 months)		
2005	Common facilities Rail upgrades Material handling		
	Foundations (5 months) Sturctural steel erection (9 months) Transmission Phase I		
2006	Common facilities Rail upgrades		

Year	SCPC Unit 1	SCPC Unit 2	IGCC
	Material handling		
	Boiler erection (20 months) Turbine installation (12 months) Transmission Phase I	Foundatons (5 months) STurctural steel erection (9 months)	
2007	Material handling		Site development and demolition (10 months)
	Boiler erection Start-up and testing (13 months) Transmission Phase I	Boiler erection (20 months) Turbine installation (12 months)	
2008	Material handling		Site development and demolition Gasification facility erection (31 months) Combined-cycle erection (25 months)
	Start-up and testing **Begin Operation May 1, 2008**	Boiler erection Turbine installation Start-up and testing (13 months) Transmisson Phase 2 (8 months)	
2009	*Operating*	Start-up and testing Transmission Phase 2 **Begin operation May, 2009**	Gasification facility erection Combined-cycle erection Transmission Phase 3 (24 months)
2010	*Operating*	*Operating*	Gasification facility erection Combined-cycle erection Start-up and testing (17 months) Transmission Phase 3
2011	*Operating*	*Operating*	Start-up and testing (17 months) Transmission Phase 3 **Begin operation May, 2011**

Municipal Services

Water and sewer service

Currently the existing OCPP facility and all of the related onsite facilities receive potable water and sanitary sewer service from the city of Oak Creek.

The two proposed SCPC plants, regardless of site, also would use potable water from the city of Oak Creek for three purposes: employee use, demineralizer make-up water, and four percent of the water used for the sulfur scrubber. The total amount of city water used would be about 294.7 thousand gallons per day. Only nine thousand gallons per day (for employee use) would return to the city via the Oak Creek sanitary sewer. The remaining water would be lost through evaporation to the air, discharge to the lake, or through off-site disposal of waste products, (e.g. gypsum by-product). Water used by the IGCC would be comparable to one of the SCPC units, so the total volume of municipal water used would be approximately 443.0 thousand gallons per day. The proposal would require no construction of water pipelines off-site and no change in Oak Creek's existing water or sewer utility facilities.

Storm water

Storm water from the site would ultimately drain to Lake Michigan, not affecting any government costs. The city of Oak Creek would have to approve storm water drainage plans for the North Site and the town of Caledonia would have to do so for the South Site or the South Site-Exp.

Refuse collection

WEPCO would hire a private contractor for solid refuse disposal; no municipal services would be required.

Police

The applicants would depend on law enforcement services from the city of Oak Creek for use of the North Site or Racine County for the South Site or the South Site-Exp, during both construction and operation. It's unlikely that such services would perceptibly increase costs of service for government units.

Fire protection and emergency medical service

The Caledonia Fire Department would be responsible for fire protection and rescue services if the facilities were built on the South Site or the South Site-Exp, whereas the Oak Creek Fire Department would be called on for these services if the facilities were built on the North Site. In reality, because much of the power plant infrastructure such as the coal handling systems, coal storage piles, and ash landfills are shared with the OCPP facilities and are located in Milwaukee County, it is likely that the Oak Creek Fire Department would continue to serve the facility, to some extent, regardless of where the two SCPC units and IGCC plant are built. WEPCO would work with the Fire Department of either municipality, because the proposed plant would have some fire suppression measures of its own, as well as storage of hazardous wastes.

Refer to the section on Railroad Impacts for a discussion of emergency access to areas of Caledonia east of the UP tracks. WE Power has proposed to close Seven Mile Road east of the tracks, regardless of which site is used or the number of units constructed.

Schools and other social services

Given the existing high growth rate of Oak Creek's population, as well as its position relative to the cities of Milwaukee and Racine, an additional 100 to 300 permanent employees relocating to Oak Creek would not have a perceptible effect on the cost of the city of Oak Creek's services. Construction workers would commute to the construction site.

Shared Revenue

Existing shared revenue program

Through the shared revenue program, the state of Wisconsin distributes state tax revenues to municipal and county governments. The public utility distribution is only one component of the shared revenue program which is calculated under a formula that consists of four components. The state reimburses municipal and county governments for public utilities because they are exempt from local taxation. The public utility portion of the shared revenue compensates local governments for costs they incur in providing services to the public utility.

Currently, the public utility portion of the revenue sharing is based on the net book value of a public utility. The net book value is the value of the production plant (excluding land and general structures) minus depreciation, treatment plants, and pollution abatement equipment. Depreciation levels can range from 20 to 40 or more years. Total payments to the municipalities and how long the payments last greatly depend on the selected depreciation schedule.

The municipality receives shared revenue dollars for only the first $125 million of net book value of the public utility for the previous year. Additionally, the amount of dollars a municipality receives would depend upon whether the utility is located in a city, village, or town. If the public utility is located within the boundaries of a city or village, the municipality would receive a shared revenue payment of $6.00 per $1000 of the utility's net book value (6 mill) or a maximum payment of $750,000 and the county will receive $3.00 per $1000 of the utility's net book value (3 mill) or a maximum payment of $375,000. If however, the public utility is located within the boundaries of a town, the town would receive a shared revenue payment of $3.00 per $1,000 of the utility's net book value (3 mill) or a maximum payment of $375,000 and the county would receive $6.00 per $1000 of the utility's net book value (6 mill) or a maximum payment of $750,000.

Regardless of whether the public utility is located in a city or town, a total of 9 mills are applied to the value of all qualifying utility property. Payments to municipalities in any year can not exceed $300 times the population of the municipality and $100 times the population of the county.

Past adjustments to the shared revenue program

Provisions in the 2001 Wisconsin Act 16 (2001-03 biennial budget) suspended this distribution formula for payments to municipalities for the years of 2002 and 2003. Instead, each municipality's payment in 2002 and 2003 equaled 101 percent of the amount the municipality received in the prior year. Payments for counties in 2002 and 2003 continued to be calculated under the original formula.

Current legislative changes to the shared revenue program

Assembly Bill 378 vastly alters the method of calculation for the utility portion of the shared revenue program. Signed into law on July 15th, 2003, this new program bases payments on the MW capacity of new plants, instead of the power plant's net book value. Power plants that begin operation prior to December 31, 2003 will have shared revenue payments calculated under the current program. Municipalities and counties with power plants that begin operation after December 31, 2003 will receive payments under the new system starting in 2005. This applies to new power plants as well as "repowered" plants with a capacity of at least one MW. If the power plant is located in a city or village, the municipality will receive a payment equal to two-thirds of the plant's capacity (MW) multiplied by $2,000. The county will receive a payment equal to one-third the plant's capacity multiplied by $2,000. The two-third\one-third relationship will be reversed if the power plant is built in a town (rather than a city or village). The total dollar amount distributed can not exceed the municipality's population multiplied by $300 or the county's population multiplied by $100. Unlike the current shared revenue system, no payments will be distributed to the municipalities or counties during the construction phase of the power plant.

Multiple incentive payments are part of this new program. Municipalities and counties can qualify for more than one incentive payment which includes:

- $600 multiplied by the plant's MW capacity
  to both the municipality and county with a non-nuclear plant that is built on or adjacent to an existing power plant site, a former plant site, or a brownfield site
- $600 multiplied by the plant's MW capacity
  to both the municipality and county with a baseload plant that has a capacity of at least 50 MW
- $1000 multiplied by the plant's MW capacity
  to both the municipality and county with a plant that derives energy from an alternative energy source and the plant has a capacity of at least one MW
- $1000 multiplied by the plant's MW capacity
  to both the municipality and county with a cogeneration plant that has a capacity of at least one MW

Specifics for the ERGS

The Department of Revenue stated that the net book value of the OCPP in 2001 was $117.3 million, resulting in a 2002 shared revenue payment to the city of Oak Creek of $703,894 (6 mills) and $351,947 (3 mills) for the county of Milwaukee. Payment in 2003 will be 101 percent of the 2002 payment resulting in $710,933 for the city of Oak Creek. The amount the county of Milwaukee will receive will depend upon the net book value of the Oak Creek Plant in 2002. In the year of 2000, the OCPP net book value fell below the $125 million cap. Without new construction or capital improvements, the shared revenue payments to the city and county will continue to sharply decrease until the OCPP is fully depreciated.
The new shared revenue program will provide significantly more dollars to municipalities and counties with new baseload plants than under the past system. In the case of ERGS, annual payments to the municipalities and counties involved will increase by at least 200 percent. New to the shared revenue program are payments which do not decrease due to depreciation but continue at the same level for the life of the power plant. As shown in Table 11-6, shared revenue payments to the municipalities and counties would start when the first unit is operational in 2006 and continue at the same level until it is decommissioned.

Table 11-6 Projected ERGS shared revenue payments

Location	One Unit (2007 and 2008)	Two Units (2009 and 2010)	Three Units (2011 – until units are decommissioned)
	Annual Payments		
North Site			
City of Oak Creek	$1,560,000	$2,380,000	$3,200,000
Milwaukee County	$1,150,000	$1,560,000	$1,970,000
South Site and South-Exp Site			
Town of Caledonia	$1,150,000	$1,560,000	$1,970,000
Racine County	$1,560,000	$2,380,000	$3,200,000

Property Values

Whether people wish to purchase a specific property depends on numerous, inter-acting variables, which a number of studies have shown are extremely difficult to define. In the end, the cost of a house or condominium compared to its amenities is clearly of first importance to prospective buyers. Just as people build houses adjacent to existing electric transmission line rights-of-way, people build houses near existing power plants. The city of Oak Creek and the town of Caledonia are examples of this. Virtually all the

houses built nearest to WEPCO's property were built after the existing coal plant was there, and the existing coal plant has less environmental controls and less aesthetic features in its design than the proposed plant. The 2000 census tract showed the average median income of households near the plant site was $60,408 in 1999, and there was no pattern related to distance from the plant.

There are property value advantages as well as disadvantages related to the proposed plant. One advantage is location near property that provides natural visual buffers and a feeling of space. Another is location near a property that manages many of its areas for bird habitat and includes a recreational trail. Disadvantages include noise and traffic. Most properties are distant from the proposed power plant, and buyers may not be aware of its presence. Many people simply screen out any awareness of electric transmission lines or distribution lines, shapes on the horizon, or passing traffic.

Review of existing studies on property values near generation sites

Power plant impacts on property values have been the subject of discussion for many years. There has been significant debate regarding the perceived costs, stigma, and negative imagery claimed to accompany electric generation plants, although few studies have been actually conducted. Survey data often reveals a high percentage of respondents who, when given a choice, prefer not live near power plants. However, property value fluctuations are caused by a complex web of amenities and disamenities that vary significantly from location to location. When studies have tried to account for all of these many variables, whether at one location or by comparing power plants in different locations, the research is not conclusive. No study has shown a clear correlation between power plant location and reduced property values, much less a cause and effect relationship.

Glen Blomquist (1974)[118] conducted a much quoted statistical analysis of a coal power plant in Winnetka, Illinois and surrounding mean property values. His study concluded that residential property values increase in value 0.9 percent for every 10 percent increase in distance from the power plant up to a distance of 11,500 feet. Numerous other articles have applied this formula to other sites and other power plants, predicting millions of dollars of losses.[119] A closer examination of his study shows an extraordinarily weak correlation of variables. Whereas most accepted social science studies have correlations that approach 80 percent, Blomquist's study has a correlation of only 55.6 percent. Additionally, a review of 2002 property value trends show that residences located adjacent to and near the Winnetka power plant have some of the highest property values in the north suburban Chicago region. There has been continued investment by homeowners in remodeling and improvements indicating no value impact resulting from the plant or its visible 150-foot emission stack.

Clark and Nieves (1994)[120] investigated the intercity impact of a broad range of "noxious facilities" on 1970 local wages and property values. Eight types of facilities with undesirable land uses were analyzed including coal-, gas-, and oil-fired electric generation plants. Findings were inconsistent. Coal-fired plants produced a

[118] Blomquist, G., The Effect of Electric Utility Power Plant Location on Area Property Values, Land Economics, 1974, 97-100.
[119] Tolley, G.S., Effects of the Proposed Indeck Facility on Property Values, Land Use and Tax Revenues, Unpublished paper, RCF Economic and Financial Consulting, Inc. Reports, 2000.
[120] Clark, D.E. and L.A. Nieves, An Interregional Hedonic Analysis of Noxious Facility Impacts on Local Wages and Property Values, Journal of Environmental Economics and Management, 27, 1994, 235-253.

negative association with property values, as well as gas- and oil-fired plants. However chemical weapon storage and hazardous waste facilities had positive impacts on property values. This inconsistency may indicate that not all of the variables were accounted for or incorrect assumptions were used. Additionally, Clark and Nieves' analysis also had a very poor correlation of variables, only 57.9 percent.

Most recently, McCann of William A. McCann & Associates, Inc., (2002)[121] evaluated the sales trends of homes located near two newly constructed electric power plants in the northeast. He compared the real estate market in these towns prior to and after construction of the plants to home sales in nearby towns without plants. Two variables were evaluated as an indicator of market strength, the ratio of a property's list price to its actual sale price and the average marketing time for listed properties. As market demand increases, the ratio of a property's list price to its actual sale price approaches 100 percent and the average marketing time decreases. The plants went on-line mid-1999 and home sales were evaluated for the years between 1997 and 2001. The data indicated steadily increasing ratios and a shortened marketing time for all the towns reviewed. This indicated no measurable impact on the marketability or value of the homes in the towns, regardless of the existence of a power plant.

A review of the literature for other disamenities such as nuclear power plants, landfills, Superfund sites, and other air and water quality impacts, produce a wide array of results.[122] [123] Even with a heightened concern over the health and safety aspects of nuclear power, research results are not consistent.[124] For example, a study of the accident at Three Mile Island and its impact on housing prices (Nelson 1981)[125] showed no statistically significant effect.

Summary of literature review

There is no consensus on the degree to which electric generation power plants affect residential property values. The undesirable impacts attributable to the reduction of property values include air and water pollution, noise, traffic, and aesthetics. These can to some extent often be minimized or mitigated. The use of large buffer zones to reduce visual reminders of the existence of a noxious facility, appear to reduce perceived property value impacts. More importantly, the significant variables that determine property values at one location cannot be generalized to apply to all locations. In some locations, amenities such as proximity to lakefronts or parks appear to outweigh perceived disamenities. In summary, research has not conclusively determined if property values are impacted by an operating power plant, much less the dollar value of any potential impact.

[121] McCann, M.S., Property Value Impact Study, Proposed Sempra Energy Facility Northwest Corner of Gast & Lemon Creek Road, Lake Charter Township, Berrien County Michigan, Unpublished paper, William A. McCann & Associates, Inc., 2002.
[122] Boyle, M.A. and K.A. Kiel, A Survey of House Price Hedonic Studies of the Impact of Environmental Externalities, Journal of Real Estate Literature, 2001, 117-144.
[123] Ridker, R.G. and J.A. Henning, *The Determinants of Residential Property Values with Special Reference to Air Pollution*, The Review of Economics and Statistics, 1967, 49:2, 246-257.
[124] Clark, D.E., L. Michelbrink, T. Allison, and W.C. Metz, *Nuclear Power Plants and Residential Housing Prices*, Growth and Change, 28, 1997, 496-519.
[125] Nelson, A.C., J. Genereux and M. Genereux, *Price Effects of Landfills on House Values*, Land Economics, 1992, 68:4, 359-365.

Jobs and Employment

Existing environment

The existing OCPP employs about 300 people that live in the local area. The plant operates 24 hours per day with three shifts per day. Currently, about 70 percent of employees at the existing plant live north of the site, mostly in the city of Oak Creek.

Expected changes in on-site employment

During construction (temporary)

The electric utility industry has one of the lowest workers per dollar investment ratio. This means that investment in about any other project would create more jobs per dollar invested.

Each of the three units would take about four years each to construct. WEPCO has provided new employment numbers for the units that include supervisory and support personnel and that fit WEPCO's changes to the construction schedule. Refer to Table 7. It appears that the inclusion of supervisory and support personnel add about 100 workers to the monthly average. This would mean an increase of an average 300 workers per month (per unit) due to an overall compression of the construction schedule.

Table 11-7 WEPCO estimates of work force employed for one SCPC unit

	WEPCO estimate from original application*	Current WEPCO estimate**
Average # of employees	500***	900
Peak # of employees	1200	1500

*Craft labor only
**Includes supervision and support personnel, as well as schedule changes
***The estimate for the IGCC unit was 600 workers, and 500 for each SCPC

The type and number of craft employees is estimated by WEPCO in Table 8.

Table 11-8 Peak and Total Work Hours per Craft

	Peak	Hours
Boilermakers	251	1,855,861
Carpenters	133	1,004,213
Cement Mason	9	87,436
Electricians	162	1,511,574
Iron Worker	224	1,447,859
Labor	285	2,049,400
Millwright	165	1,220,109
Operator	191	1,410,585
Pipefitter	300	2,512,644
Teamster	76	652,228

	Peak	Hours
Insulator	79	383,611
Brick Layer	3	16,440
Painter	11	54,802
Sheetmetal	79	383,611
Field Non-Manual	170	1,801,263
Total	1,505	16,391,634

Most construction employees would come from southeastern Wisconsin and commute to the construction site. WEPCO provided the information in Table 11-9 to show where construction employees would originate. WE Power would only employ union workers for construction of the ERGS project.

Table 11-9 Average Monthly Workforce Projection by Region

Craft	SE Wisconsin		Wisconsin		Out of State		Total
Boilermakers	57	56%	14	14%	31	30%	102
Carpenters	46	84%	5	8%	5	8%	55
Cement Mason	5	100%	0	0%	0	0%	5
Electricians	58	70%	18	22%	7	8%	83
Iron Worker	58	73%	13	16%	9	11%	80
Labor	113	100%	0	0%	0	0%	113
Millwright	35	52%	25	38%	7	10%	67
Operator	54	69%	18	23%	6	8%	78
Pipe Fitter	84	60%	28	20%	28	20%	139
Teamster	36	100%	0	0%	0	0%	36
Insulator	14	64%	5	21%	3	14%	21
Brick Layer	1	100%	0	0%	0	0%	1
Painter	3	100%	0	0%	0	0%	3
Sheetmetal	15	71%	5	23%	1	6%	21
Field Non-Manual*	20	20%	5	5%	74	75%	99
Total	637	70%	155	17%	111	12%	903

*Field Non-Manual personnel include field supervision, management, buyers, clerks, quality assurance, start-up personnel , etc.

During operation (permanent)

About 100 people would be needed to operate each unit. Most long-term employees would likely re-locate to the city of Oak Creek, or possibly the town of Caledonia and the suburbs of the city of Racine. At WEPCO, employees that operate generators must be union members. Ninety-five workers would lose long-term employment due to the recently approved construction of the Port Washington plant. WEPCO plans to make transfer positions available to displaced employees, and it is possible that this would further reduce, directly or indirectly, the number of new long-term positions created by the proposed ERGS.

Supplier diversity program

WEC has a program for promoting supplier diversity called the Supplier Diversity Initiative. This program targets minority, women, and small business enterprises. Supplier Diversity objectives for WE Power's proposal include:

- Establishing attainable diversity goals up to 25 percent by product and service category.
- Establishing attainable goals for women and minority participation in the construction of the ERGS units.
- Creating processes and communication plans, including a citizen advisory council, to monitor supplier diversity activities and progress toward goals.
- Developing innovative and effective means to accomplish diversity participation with low administrative costs.

Fugitive Dust

Many people living near the existing power plant site are concerned about the potential for dust blowing into their yards, making houses, snow, clothes hung outside, and lawn furniture dirty, and requiring them to clean off their car windshields every day before leaving their homes. People are also concerned about health effects related to fugitive dust. This section and Chapters 6 and 7 discuss aspects of the potential for fugitive (blowing) dust. This section summarizes potential dust sources and possible mitigation strategies. (Blowing dust from railroad operations is discussed in this section and referenced in the Railroad section later in this chapter.) Chapter 6 discusses the coal handling system and coal dust suppression equipment. Chapter 7 discusses control of emissions and fugitive dust to protect health.

DNR regulation of fugitive dust

Existing rules

The DNR regulates fugitive dust under NR 415, and the applicants must obtain a construction air permit from the DNR. This permit would list required fugitive dust control measures. The DNR also can investigate complaints about fugitive dust. The DNR website suggests that the fastest remedy to fugitive dust problems is to contact the contractor. Regulations in section NR 415 require any contractor to take measures to prevent particulate matter from becoming airborne. The applicants should have an on-site contact to call in case of problems.

DNR analysis of suspected dust samples from existing power plants

The DNR is willing to analyze samples of suspected coal dust damage. The results of analysis of the three most recent DNR samples are described in Table 11-7.

In the Oak Creek area, a number of factors, including dust blown from farm fields, mold encouraged by damp air and particulates from vehicle traffic or nearby urban areas complicate the issue of coal dust. Since late 2001, WEPCO has also analyzed samples at homeowners' request but did not find any coal dust.Some long-term OCPP neighbors remember past problems, which have been corrected by new pollution control devices.

New rules specifically addressing coal dust

The DNR is in the process of addressing concerns related specifically to dust generated by transposrt and storage of coal. The Natural Resources Board considered a proposed rule at its April 2003 meeting. A likely outcome is draft rules and a 12-month study into best management practices for handling and storage of coal.

Requirements of local government

The city of Oak Creek and the town of Caledonia may also impose restrictions on blowing dust as part of their review of the applicant's request for a conditional use permit under local zoning codes.

Table 11-10 DNR analysis of dust complaints

Date	Sample	Analysis
12/02	Dust from pick-up truck	90% Mold, 5% calcium carbonate rock/mineral fragments (i.e. calcite, limestone, dolomite), 5% quartz mineral fragments, traces (1%) of fused, isotropic, glass, coal flyash spheres
02/03	Leaf	Oak Leaf in general displays abundant mold growth, and the gray spots appear to be caused by mold colonies.
02/03	Siding	The dark discoloration on the vinyl siding fragment is caused entirely by fungal growth

Potential fugitive dust sources

The greatest potential for blowing dust occurs during the construction period, due to the reshaping of site topography, including new cuts into the bluff. However, nearby residents are also concerned about dust from WEPCO's use of the active and reserve coal piles during plant operation. In the long-term, WE Power plans to mine both the North Landfill and the South Landfill, but that would occur after construction and operation of the proposed units.

Table 11-11 Potential sources of dust from the Oak Creek Site

During construction	During plant operation
Earth movement & soil stockpiling	Active & reserve coal piles
Trucks hauling soil off-site	Hauling ash to markets
Other construction activities	Mining ash landfills

Effect of site selection and number of units

The number of units built and site location would significantly affect the amount of soil excavated, trucked, and stockpiled during construction. Of the possible sites, use of the South Site requires the least amount of cut and fill. Construction of one or two units would require less soil excavation than three units.

Earth movement and soil stockpiling during construction

Table 11-12 shows the amounts of soil required to be excavated in order to build the facilities on the sites proposed in the CPCN application. Similar information related to the site layout for the CUP Option negotiated by WEPCO and the city of Oak Creek in May 2003 is found in Chapter 12.

Table 11-12 Amount of excavated material required for construction

	North Site	South Site	South Site-Exp
One new coal unit (one 615 MW SCPC)	6.2 million cubic yards	4.6 million cubic yards	4.6 million cubic yards
Two new coal units (615 MW SCPC)	7.3 million cubic yards	5.8 million cubic yards	5.8 million cubic yards
Three new coal units (two 615 MW SCPC units and one 600 MW IGCC unit)	10 million cubic yards	7.3 million cubic yards	9.8 million cubic yards

The applicants' would likely keep all excavated soil on-site due to the short construction period allotted for earthwork. Table 11-13 shows the tentative placement of soil for building various numbers of units at the different proposed sites. Moving this amount of soil from the "bowl area" near the lakeshore to the different soil deposition areas on-site could cause substantial wind-blown soil during dry, windy conditions.

Possible methods for controlling dust from construction traffic include wet suppression, control of vehicle speeds, sealants, and the paving and maintenance of roadways. In addition, the applicants plan to continue using water spray trucks for on-site roads.

If it was feasible to truck soil off-site, the most southern stockpile on STH 32 would be the first deposit site eliminated. This would preserve about 42 acres of leased farmland. Second, the stockpile between the access road and the transmission corridor would be reduced. If or when soil was moved off-site, the applicants have indicated a preference for using covered dump trucks.

Table 11-13 On-site placement of excavated soil (assuming no off-site disposal*)

Location of Soil Stockpiles (Refer to Figures Vol. 2-13, 2-15, 2-17 and 2-19)	Existing Land Cover	North Site		South Site		South Site- Exp	
		Two SCPC units only	w/ IGCC	Two SCPC units only	w/ IGCC	Two SCPC units only	w/ IGCC
1. Extend & add to screening berms around Haas Park & along south side of Elm Road	Grassland, old fields & wetlands	725,000 cubic yards	725,000 cubic yards	725,000 cubic yards	725,000 cubic yards	725,000 cubic yards	725,000 cubic yards
2. Extend & add to screening berms across RR tracks from Barton Road, northeast to Oakwood Drive, & south of Oakwood toward shoreline	Old fields & wetlands						
3. Place on South Oak Creek landfill	Grassland	2,475,000 cubic yards	3,797,000 cubic yards	2,474,000 cubic yards	3,797,000 cubic yards	2,474,000 cubic yards	3,797,000 cubic yards
4. Place on North Oak Creek landfill	Grassland	About 1,000,000 cubic yards	About 1,000,000 cubic yards	500,000 cubic yards	500,000 cubic yards	500,000 cubic yards	500,000 cubic yards
5. Create berm in area east of STH 32 along county line, south of the electric transmission corridor	31 acres of farmland, & 6 acres of woodland	1,213,000 cubic yards*	1,213,000 cubic yards*	NA	1,213,000 cubic yards	NA	1,213,000 cubic yards **

Location of Soil Stockpiles (Refer to Figures Vol. 2-13, 2-15, 2-17 and 2-19)	Existing Land Cover	North Site		South Site		South Site- Exp	
		Two SCPC units only	w/ IGCC	Two SCPC units only	w/ IGCC	Two SCPC units only	w/ IGCC
6. Stockpile in area east of STH 32, north of Seven Mile Road, & west of the railroad	42 acres of farmland	691,000 cubic yards	1,854,000 cubic yards	1,867,000 cubic yards	875,000 cubic yards	1,867,000 cubic yards	1,867,000 cubic yards**
7. Create berm west & south of switching station expansion, east of railroad	Parking, storage, old field, & wetlands	About 1,000,000 cubic yards	About 1,000,000 cubic yards	NA	NA	NA	NA
8 Berm around relocated gun range (south of present location)	Farmland	NA	NA	NA	NA	NA	1,142,000 cubic yards**

*Area 4 + Area 5 + Area 7 = 3,224,000 cu. yd
** Area 4 + Area 5 + Area 6 + Area 8 = 4,722,000 cu. Yd

Soil cover

The applicants propose to plant all new, and existing soil areas with a grassland seed mix, that is designed to attract and feed birds (see the Wildlife section in Chapter 10). The type of grassland planted would depend on soil conditions. WEPCO uses birdsfoot trefoil to prevent erosion on steep slopes. Ornamental plantings, such as trees and bushes, as well as lawn grass could cover areas most visible to neighboring residents. Neighbors across Elm Road have complained about thistle seeds invading their lawns from the WEPCO grassland cover of the South Landfill. Thistle seeds are not part of the seed mix and should be eliminated from the planting by the site manager. WEPCO would cut the grasslands once every one or two years in order to thicken the grass, and to promote and protect wildlife.

Of most concern to nearby residents is the blowing or erosion of soil during the site preparation process. The applicants intend to employ a number of temporary soil stabilization techniques. Soil control measures and the success of those measures are under the purview of the DNR, and also possibly the city of Oak Creek or the town of Caledonia. Measures to ensure soil erosion and windblown soil would be included in a plan submitted to the DNR as part of the permitting process.

Reserve coal pile

The purpose of the reserve coal pile is to provide a back-up source of coal in case of problems with fuel delivery or during outages at the car dumper or active storage building. WEPCO would take the car dumper and active storage building out of use for two weeks of planned maintenance each year. Under the best-case scenario, WEPCO would use the reserve coal pile for only these two weeks (14 days) a year. This assumes all coal delivery would be by rail car, as the applicants currently prefer. If coal is delivered by ship, the reserve coal pile would be used for three months out of the year when ships cannot reach the harbor. Ship delivery would require an expanded coal pile and construction of the rail upgrades that are proposed.

The reserve coal pile would be located southeast of the Barton Oaks Subdivision. The nearest house would be about 1,000 feet from the coal pile. A buffer of trees and a drop in topography from the railroad track to the house would separate the two. Refer to figures Figures Vol. 2-12 through 2-17. It would take about two months to create a reserve coal pile, with sealant applied as soon as a section is complete. Coal would be added or removed from the pile from the side farthest away from the subdivision.

The reserve coal pile would also be located about 600 feet from an existing storage tank for liquefied natural gas (LNG). Concerns have been expressed about the potential for fire or explosions due to this close proximity, however, the applicants state that these dangers would not exist because coal itself is not volatile, and because the coal pile would be sealed.

According to the CPCN application, coal arriving at the Oak Creek site, would be delivered to one of three places: directly to the units, to the active storage building, or to the reserve coal pile. The unit coal silos would be filled first, then the active storage building. Only when these two storage facilities were full or out of service would the coal be directed to the reserve coal pile.

The reserve coal pile would be stacked out, or filled, via conveyor with a telescoping chute. This chute could be raised and lowered to minimize the drop height to the pile, which minimizes fugitive dust. Wet suppression would be used to control dust during filling, moving, and reclaiming operations, weather permitting. From the drop point, the coal would be distributed onto the reserve pile with mobile dozing equipment.

During the initial construction of the reserve pile, the coal would be moved from the drop point to the farthest point of the reserve pile. The coal would continue to be moved in toward the farthest point until the pile was filled and compacted. The time required to initially construct the reserve pile was estimated to be two months.

The pile would be sealed as it was being created. Compaction and a chemical surfactant, which forms a hard crust on the surface of the pile, would be used to prevent dust from wind erosion. The control efficiency of the chemical surfactant is 80 percent. An alternative method of sealing the pile would be by planting grasses on the surface. The effectiveness of this method compared to the chemical surfactants has not yet been determined.

The coal would be reclaimed from the reserve pile by moving the coal to the underground reclaim hoppers with mobile dozing equipment. Coal could be reclaimed from any point on the pile, but it would usually be taken from a point closest to the reclaim hopper. The period of time required to refill the pile would be dependent on the amount of fuel reclaimed from the pile, the coal requirements of the unit (based on generation), and the coal delivery schedule.

Active coal pile

The applicants propose to place the active coal pile within an enclosure. See Figures 11-3 and 11-4. The coal-handling system would include equipment, such as the baghouse, to control dust. Refer to Chapter 6 for more detail about this building.

Figure 11-3 Enclosure for the active coal pile – interior

Figure 11-4 Enclosure for the active coal pile – exterior

Shipping ash to markets
Until markets are developed, WEPCO would stockpile the ash produced by the new units at the Caledonia Landfill. Covered trucks would carry the ash over internal site roads to this on-site landfill, where dust control and leachate treatments would be implemented. Following the development of beneficial-use markets for the ash, WEPCO would use tanker trucks and covered dump trucks to ship ash off-site. This would include the ash kept at the Caledonia Landfill.

The types of ash shipped include fly ash (shipped in tanker trucks), bottom ash (shipped in covered dump trucks), and slag from the IGCC unit (shipped in covered dump trucks). Sales of bottom ash are seasonal, so it would sometimes be temporarily stockpiled at the Caledonia Landfill. Slag is black, glassy, sand-like material that is highly non-leachable. Refer to the Traffic section for more information on the expected number of ash shipments. These shipments are included in the DNR air model used to predict fugitive dust.

Mining ash landfills

The proposed units could burn ash from two on-site landfills, the South Landfill and the North Landfill which are both currently closed. However, mining these landfills for ash would not begin until after the proposed units are built and operating, and markets have been found for the by-products created when this ash is burned. The DNR air models for fugitive dust include the trucks that would haul landfill ash, and its by-product. The applicants' air permit application includes the possibility for adding some ash to the fuel burned at the proposed plants. However, before mining begins, a permit would be needed from the DNR for opening these landfills.

The mining would be a gradual process, taking place over at least thirty years. The applicants would stockpile soil from the proposed construction on top of the North and South landfills. In the future, WEPCO would use this soil to replace ash mined from the landfills. Although ash recovery is not a significant part of the proposed project, it could be a positive effect. Due to public interest at the scoping meetings, the ash recovery process is described below.

Ash recovery is a gradual process. First, the covering soil is removed, then the ash is gradually removed, care being taken to get as much ash as possible. WEPCO does not expect to have any problems separating the soil cover from the ash landfill. Workers then push the recovered ash through a screening machine to make sure there are no foreign objects in it. Methods to control dust are used as necessary. However, mined ash is not powdery dry, but wet like ordinary soil. WEPCO would not allow newly exposed ash to dry out, as that would make mining and transport difficult, in addition to causing dust problems. The mined ash would be sprayed with water to give it a crust, or covered with a tarp. WEPCO has had experience in mining other existing ash landfills, including the Highway 59 landfill in Waukesha, the Kansas Avenue landfill in St. Francis, and the Pleasant Prairie landfill.

Based on information submitted in the air permit application for the CUP Option, the mined ash from the North Oak Creek Landfill would be moved via a 9,000-foot road to an ash reburn storage area near the base of the rail loop track. The proposed haul road cuts directly through the high-quality beech maple forest area at the northern end of the rail loop designated as a Critical Species Habitat area and other areas designated as Isolated Natural Resource Areas (see Chapter 10).

Traffic

Existing environment

The existing roads in the project area and on WEPCO's property are shown in Figures 6-1 and 6-2. Currently there are about 300 to 350 employees working at the existing OCPP facilities. They work during three shifts over a 24-hour period. There are also about 100 other vehicles that visit the site daily for purposes of making deliveries or equipment maintenance. Assuming no carpooling occurs, this would yield about 800-850 vehicle trips per day on the entrance road into the site and on Elm Road.

STH 32 plans

Under the 2020 Highway plan adopted by Racine County, Milwaukee County, and SEWRPC, STH 32 would become a four-lane, divided highway up to STH 100. The Milwaukee County portion of this widening would be complete in 2007. Racine County would widen the stretch between Five Mile Road and the Milwaukee County line by 2010.

Currently STH 32 is a four-lane highway from Three Mile Road to Five Mile Road. Further south, it conitnues into the city of Racine, but is still used as four lanes.

From Three Mile Road to Four Mile Road there is a fifth (turning) lane. North of Four MileRoad to Five Mile Roads there is a small grass median. From Five Mile Road north, the plan is to make STH 32 a divided highway with some type of grass median.

County plans for Four Mile Road and STH 32

Racine County just finished rebuilding the intersection of Four Mile Road and STH 32. There are five lanes in each direction. To the east and west, there are four lanes with a left turn lane in the middle. To the north and south, there are four lanes with a turning lane in the middle. About 200 feet to the east and west, the road tapers back down to a two-lane facility. To the east, buildings located near the road limit expansion of the road. To the west, road expansion is a possibility. At Four Mile Road, the UP rail track is to the west of STH 32, rather than to the east as it is at Seven Mile Road and Six Mile Road. If commuter trains become a reality, the County plans to put a rail depot on the west side of the tracks, north of Four Mile Road.

East of STH 32, Four Mile Road is now a county facility. West of STH 32, it is a town facility. Plans exist to exchange this ownership. When the County acquires Four Mile Road west of STH 32, it would rebuild it to two or four lanes, depending on current plans.

Under the County's current plan, Four Mile Road would remain a two-lane highway west of STH 32. However, this plan is part of the SEWRPC plan through 2020. SEWRPC is in the process of updating the plan to extend it to 2025. One of the items identified for review is the optimal number of lanes for Four Mile Road, west of STH 32 to STH 31.

Increased traffic

The sources of increased traffic during construction are: (1) truck delivery of equipment and supplies, and (2) additional employee vehicles. Hauling excavated soil offsite by truck would not be possible under WEPCO's currently proposed construction schedule.

Effects of site location and number of units on local traffic

The location of the site would not affect traffic patterns for construction vehicles, because construction vehicles would approach WEPCO's property from a number of locations at many different distances, and all would use the same two site access roads off STH 32.

Construction of one unit would create the least effect on local traffic. Construction of two or three units would have very similar effects, due to the differing construction schedules for each plant. Construction of two units would generate a maximum count of 3,680 vehicle trips, while construction of three units would generate a maximum count of 4,180 vehicle trips. The number of units would affect the number of years that construction traffic contributes to area traffic, since fewer units would take less overall time to build. The amount of traffic during plant operation is far less than the amount of traffic expected during the construction phase. Operation of two units would result in double the traffic of operating one unit and three units would triple the traffic of a single unit.

During the construction period

WE Power has increased their projections for the average number of people employed during construction of the proposed plant. These new estimates better match a slightly compressed construction period and include non-craft personnel, not all of whom would work on-site.

Several tables below include estimates of the total vehicle trips per day during the construction and operation phases of one, two, or three new coal units. The analysis assumes that all supplies would be delivered by truck (while some would come by barge and rail) and that no car-pooling would occur (although most construction firms offer incentives for car-pooling). Actual vehicle traffic to and from the site would vary, due to the varying construction activities for one to three units over an extended period. Actual traffic numbers are likely to occur that would be both higher and lower than the numbers used in this analysis.

During the construction period for the first SCPC unit, vehicle traffic would increase by about 1,840 vehicle trips per day. For two units, there is an overlapping period when both units would be under construction. During those years of overlapping construction work (about half of the total construction period), vehicle traffic would increase by about 3,680 average vehicle trips per day. For three units, the construction period would last about eight years, with peak traffic at 4,180 average vehicle trips per day (this would occur during the year when the second and third units are under construction, while the first is operating). NOTE: "Vehicle trips" accounts for vehicles entering and leaving the site and thus, is usually double the number of actual cars or trucks.

Table 11-14 Average daily traffic during the construction period for one SCPC unit

Year	Personal vehicles	Truck deliveries	Total vehicle trips
2004	900 workers (1800 vehicle trips)	20* deliveries (40 trips)	1840
2005	900 workers	20* deliveries	1840
2006	900 workers	20* deliveries	1840
2007	900 workers	20* deliveries	1840
2008	900 workers	20* deliveries	1840
Operation of Unit 1 begins**			
2008	100 workers	150 ***	500
2009	100 workers	150 ***	500
2010	100 workers	150 ***	500
2011	100 workers	150***	500

* The actual estimate is 15 to 20 trucks on average per workday, with a peak of about 40-50 trucks per workday.
** Routine maintenance, during a yearly 4-5 week period, could add an additional 200 average vehicles per workday or 400 trips.
*** This number does not include trucks required for ash shipment, which would begin about 5-10 years after plant operation. See Table 3-15

Table 11-15 Average daily traffic during the construction period for two SCPC units

Year	Unit 1		Unit 2		Total Vehicle Trips
	Personal Vehicles	Truck Deliveries	Personal Vehicles	Truck Deliveries	
2004	900	20* deliveries	Site preparation done. Dock extension begun.		1840
2005	900	20* deliveries	No activity	No activity	1840
2006	900	20* deliveries	900	20*	3680
2007	900	20* deliveries	900	20*	3680
2008	900	20* deliveries	900	20*	3680
Operation of Unit 1 begins**					
2008	100	150 ***	900	20*	2340
Operation of unit 2 begins**					
2009	100	150 ***	100	150 ***	1000
2010	100	150 ***	100	150 ***	1000
2011	100	150 ***	100	150 ***	1000

* The actual estimate is 15 to 20 trucks on average per workday, with a peak of about 40-50 trucks per workday.
** Routine maintenance, during a yearly 4-5 week period, could add an additional 200 average vehicles per workday or 400 trips.
*** This number does not include trucks required for ash shipment, which would begin about 5-10 years after plant operation. See Table 11-18.

Table 11-16 Average daily traffic during the construction period for two SCPC units and one IGCC unit

Year	Unit 1		Unit 2		Unit 3		Total Vehicle Trips
	Personal Vehicles	Truck Delivery	Personal Vehicles	Truck Delivery	Personal Vehicles	Truck Delivery	
2003	900	20*	Site preparation & dock extension				1840
2004	900	20*	No Activity				1840
2005	900	20*	900	20*	No activity		3680
2006	900	20*	900	20*	No activity		3680
2007	900	20*	900	20*	No activity		3680
Unit 1 begins operation**							

	Unit 1		Unit 2		Unit 3		
Year	Personal Vehicles	Truck Delivery	Personal Vehicles	Truck Delivery	Personal Vehicles	Truck Delivery	Total Vehicle Trips
2008	100	150***	900	20*	900	20*	4180
Unit 2 begins operation**							
2009	100	150***	100	150***	900	20*	2840
2010	100	150***	100	150***	900	20*	2840
Unit 3 begins operation**							
2011	100	150***	100	150***	100	150***	1500

* The actual estimate is 15 to 20 trucks on average per workday, with a peak of about 40-50 trucks per workday.
** Routine maintenance, during a yearly 4-5 week period, could add an additional 200 average vehicles per workday or 400 trips.
*** This number does not include trucks required for ash shipment, which would begin about 5-10 years after plant operation. See Table 11-18.

Increased traffic during operation could be due to: (1) truck delivery of supplies, (2) additional employee vehicles, (3) vehicles used in routine maintenance, (4) ash shipment to market, (5) vehicles needed for mining of landfill ash, and disposal of byproducts, and (6) gypsum shipments to market if a wallboard plant is not built onsite or if the gypsum is not barged offsite.

Increase in traffic for plant operation

Table 11-17 shows the estimated increase in traffic for operation of one to three units at the ERGS. The table shows truck traffic and employee traffic separately, as they would cause different wear on roads. Truck deliveries would mostly occur during the five-day workweek, from about 7:00 am to 5:00 pm. Employees would work around the clock, with the largest number on the day shift.

Table 11-17 Worst-case increase in traffic due to plant operation*

Traffic During Plant Operation (1 unit)	
Traffic source	**Vehicle count**
Operating personnel	100 vehicles per day (30-50/shift) 200 vehicle trips
Truck deliveries (assuming all shipments other than coal)	150 vehicles per day 300 vehicle trips
Additional vehicles during routine maintenance (occurs 4-5 weeks annually)	Additional 200 vehicles per day (maximum) 400 vehicle trips
Total traffic	500 average vehicle trips per day (900 per day during annual maintenance)
Traffic During Plant Operation (2 units)	
Traffic source	Vehicle count
Operating personnel	200 per day (100-150/shift) 400 vehicle trips
Truck deliveries (assuming all shipments other than coal)	300 vehicles per day 600 vehicle trips

Additional vehicles during routine maintenance (occurs 8-10 weeks annually)	Additional 200 vehicles per day (maximum) 400 vehicle trips
Total traffic	1000 average vehicle trips per day (1400 during annual maintenance)
Traffic During Plant Operation (3 units)	
Traffic source	Vehicle count
Operating personnel	300 per day (100-150/shift) 600 vehicle trips per day
Truck deliveries (assuming all shipments other than coal)	450 vehicles per day 900 vehicle trips per day
Additional vehicles during routine maintenance (occurs 12-15 weeks annually)	Additional 200 vehicles per day (maximum) 400 vehicle trips per day
Total traffic	1500 average vehicle trips per day (1900 during annual maintenance)

*Barge delivery during summer months could reduce truck traffic by 30 percent.

Ash shipments

The number of vehicle trips for shipment of ash to off-site beneficial-use markets or waste disposal sites is not included in Table 11-17. At first, the applicants plan to store ash at the on-site Caledonia Landfill. However, some off-site ash shipments could start following the startup of the first SCPC unit. WEPCO expects that 100 percent utilization would occur after markets for the ash are fully developed. Table 11-18 shows the ultimate amount of off-site ash shipment, although shipments are likely to start at a lower number and increase as markets develop.

Table 11-18 Average daily truck shipments of ash during plant operation

	One Unit	Two Units	Three Units
Fly ash shipments	16 tank trucks	32 tank trucks	32 tank trucks
Bottom ash shipments	5 dump trucks	9 dump trucks	9 dump trucks
Slag shipments	N/A	N/A	24 dump trucks
Shipping products of ash re-burn (fly & bottom)*	12 vehicles	19 tankers, 5 dump trucks	19 tankers, 17 dump trucks
Total shipments	**33 trucks (66 vehicle trips)**	**65 trucks (130 vehicle trips)**	**101 trucks (202 vehicle trips)**
Comparison with numbers used to calculate the effects of traffic during operation			
Total operational trips used in calculations	500-900**	1000-1400**	1500-1900**

* Assuming the new units can burn a mix of coal and ash, with up to 5 percent ash
** With and without traffic for 4-5 week annual maintenance

Effects on area roads

Method used to estimate the effect of increased traffic on area roads

The most likely route(s) were used to estimate the effects of increased traffic on area roads. Estimates for daily vehicle traffic (average annual) were compared to the daily traffic counts (average annual adjusted) on

area roads. These comparisons are expressed as a percentage increase in traffic. A percentage is calculated for the lowest construction traffic (1,840 vehicle trips - associated with construction of only one unit) and for the highest construction traffic (4,180 vehicle trips - associated with construction of all three units).

This method for estimating the effect of increased traffic on area roads produces very general estimates for the following reasons:

- Only the most likely traffic route(s) are analyzed, while in reality traffic is likely to follow a number of different possible routes (including all routes would decrease percentages)
- Estimates of construction traffic are very general
- Vehicle estimates for operation do not include shipments for ash (including ash shipments would increase percentages)
- Road vehicle counts are for current or recent years. Actual road counts in later years will probably be higher, thus decreasing the percentages.
- There are plans to widen Four Mile Road and STH 32 (becoming higher capacity roads would probably increase their use and thus decrease the percentages)
- Vehicle counts vary depending on the stretch of road sampled (the largest location-appropriate number is used, quieter stretches of road would see a larger percentage increase in traffic)
- Estimated traffic numbers are primarily for a five-day week (the exception is traffic caused by employees during plant operation), while road counts are for a seven-day week (spreading estimated traffic numbers over a seven-day week would decrease the percentages)

Traffic associated with the operation of the proposed plant is generally comparable or less than traffic related to plant construction. In addition, long-term employees are more likely to live near the plant site. For these reasons, the effects of increased traffic due to plant operation are described only for STH 32, assuming all units are in operation. Traffic associated with the first SCPC operating while the other SCPC is under construction is included in the estimates for construction traffic.

Traffic counts on roads are taken from the 2001 Wisconsin Highway Traffic Volume Data, published by the Wisconsin Department of Transportation.

Increased interstate traffic

Construction traffic is likely to enter the area by way of Interstate 94 (I-94), and then travel east to the site. I-94 is heavily trafficked. South of I-43, the average daily number of vehicles (AADT - adjusted for season and day of week) traveling in both directions was 146,600 vehicles in 2001. South of Seven Mile Road in Racine County, the AADT for 2000 was 82,400. If all three ERGS units were built and all traffic for the construction came from the south on I-94, then traffic on that portion of I-94 would increase by about 1 percent to 3 percent, using the least and most vehicle trips from Table 11-19. However, not all traffic would enter the area from the south on I-94. Traffic would likely also approach from the north on I-94, and from the north and south via STH 32, STH 38, and STH 36. Some may also come from west of I-94.

Roads bringing construction traffic east from I-94

The nearest I-94 exits to both ERGS site are at Seven Mile Road and CTH G (with access to Four Mile Road) in Racine County. However, STH 100 (north of the WEPCO property) and Seven Mile Road (south

of WEPCO's property) are the most likely exits, due to the location of the site access road (on STH 32 near County Line Road).

Existing traffic on STH 100

STH 100 (Ryan Road) connects I-94 and STH 32 in Milwaukee County (see Figure 6-1). Table 11-19 shows the amount of traffic on STH 100.

Table 11-19 Traffic counts on STH 100 - average annual daily traffic (AADT*) in the year 2000 (except as noted)

Location	AADT
West of STH 38	22,200
East of STH 38 (year 2001)	13,500
Between Shepard Avenue & Nicholson Road	11,300
Between Nicholson Road & Pennsylvania Avenue	10,200
Between Pennsylvania Avenue & 15th Avenue	9,600
Between 15th Avenue & STH 32 (Chicago Avenue) (year 2001)	10,300

*Adjusted for season and day of the week.

Existing traffic on Four Mile Road and Seven Mile Road: west of STH 32

Table 11-20 shows traffic on Seven Mile Road east of I-94 and west of STH 32. Table 11-21 shows traffic on Four Mile Road east of I-94 and west of STH 32.

Table 11-20 Average adjusted daily traffic (AADT)* on Seven Mile Road east of I-94 and west of STH 32 (year 1999)

Location	AADT
From interchange with I94 to CTH V	3,400
From CHT V to STH 38	3,300
From STH 38 to STH 32 (near STH 38 end)	1,400
From STH 38 to STH 32 (near STH 32 end)	1,000

*Adjusted for season and day of week

Table 11-21 Average adjusted daily traffic (AADT*) on CTH G/Four Mile Road east of I-94 and west of STH 32 (year 1999)

Location	AADT
East of I-94	2,800
East of Caledonia and west of CTH H	2,600
With STH 38 east of Husher	9,900
West of STH 32	6,900

*Adjusted for season and day of week

Increased traffic on STH 100, Seven Mile Road, and Four Mile Road due to construction vehicles

Seven Mile Road and STH 100 would bring the bulk of traffic east from I-94, although construction traffic would also approach the site from routes other than I-94. However, if all construction traffic came to the site via I-94 and exited on just one of these roads, there would be a noticeable increase in traffic. For example, if all construction traffic approached the site via I-94 and then came east on STH 100, traffic on

STH 100 would increase from five to twelve percent. If construction traffic used only Seven Mile Road, the increase would vary from 30 to 82 percent.

If all construction traffic approached the site via I-94, and then used both STH 100 and Seven Mile equally, the increase in traffic on STH 100 would vary from two to six percent, and the increase on Seven Mile would vary from 15 to 41 percent. If all construction traffic approached the site via I-94 and then used both STH 100 and Seven Mile Road in proportion to their existing capacities, the increase on each road would vary from four to eleven percent.
If all construction traffic approached the site via I-94, and then used STH 100, Seven Mile Road, and Four Mile Road in proportion to their capacities, the increase on these three roads together would vary from three to eight percent. Refer to the description of plans for Four Mile Road and STH 32 at the end of this section.

Construction traffic close to the site entrance

All construction traffic would use one of two proposed new access roads off of STH 32 when entering or exiting the site. This would hold true regardless of the site chosen or the number of generating units built.

Existing traffic on STH 32

Table 11-22 shows the traffic count on STH 32 (also called Chicago Road in Milwaukee County and Douglas Avenue in Racine County). Both Milwaukee County and Racine County have adopted a plan that would expand the existing STH 32 from two lanes to a four-lane divided highway. Refer to the description of plans for Four Mile Road and STH 32 near the end of this section.

Table 11-22 Traffic counts on STH 32 - annual average daily traffic (AADT*) in the year 2000, except as noted

City of Oak Creek	
Between STH 100 & Fitzsimmons (Year 2001)	13,000
Between Fitzsimmons Road & Oakwood Road	10,900
Between Elm Road & County Line Road	9,200
Town of Caledonia (Year 1999)	
Between County Line Road & Seven Mile Road	8,700
Between Seven Mile Road & Six Mile Road (also CTH G in stretches)	9,600

* Adjusted for season and time of day

Increased traffic on STH 32 due to construction vehicles

Assuming that half of the construction traffic approaches the site entrance from the north and half approaches from the south, and using an average of the available AADT counts on STH 32 north and south of the site entrance, traffic on STH 32 north of the site entrance would increase from about 5 to 12 percent. Traffic on STH 32 south of the site entrance would increase from about 6 to 15 percent. The smaller percentages correspond to a vehicle trip count of 1,040 per day and the larger percentages correspond to construction traffic at 2,780 average vehicle trips per day. The carrying capacity of STH 32 and the number of cars that use this highway may change if it is expanded according to county plans.

Increased traffic on STH 32 due to plant operation

For about nine months, there would be about 1500 vehicle trips per day for operation of all three units. Assuming half of this traffic comes from the north and half from the south, traffic on STH 32 would

increase by about six to eight percent from the north and eight to nine percent from the south. For the three to four months of additional traffic during routine maintenance, traffic on STH 32 would similarly increase by about seven to ten percent from the north and ten to eleven percent from the south.

Table 11-23 Maximum traffic during plant operation for all three units*

Traffic Source	Vehicle Count	Access Road
Operating personnel	600 vehicle trips per day	STH 32
Truck deliveries	900 vehicle trips per day	STH 32
Additional vehicles during routine maintenance (occurs 12-15 weeks annually)	400 vehicle trips per day	STH 32

*Does not include ash shipments.

Site access roads and traffic flow

Since release of the draft EIS, WEPCO has changed its proposed site access. The current proposal is described in the following WEPCO-written paragraphs.

"Our application includes a main truck entrance at our existing site road at Botting Road and State Highway 32, and an employee entrance via Oakwood Road. Our current plan, includes the Botting Road entrance from State Highway 32 and an entrance from State Highway 32 about 1500 feet south of Botting Road. Oakwood Road would be used for access to the visitor center and fishing pier only."

This road configuration is as shown on drawings submitted as supplemental information to the DNR with copy to PSC on June 2, 2003.

As stated (in DR-102), our current road arrangement includes two entrances to the site from State Highway 32. These two entrances are centrally located to the property, and would be used for either the north, south, or south-exp site arrangements.

Construction Phase:

During the first 12 months of the construction phase, all OCPP employees, all OCPP ash handling vehicles and all other miscellaneous OCPP vehicles will enter the site via Elm Road. All ERGS construction vehicles will enter the site via the plant entrance at County Line Road.

The Main Access Road will be created during the first 12 months of construction. The Main Access Road will enter the site from north of Botting Road and will travel easterly to the rail loop where a rail crossing will occur. The road will then continue to the excavation area at the bowl, to the construction laydown, to parking at the north ash disposal area and to the future ERGS employee parking lot located just west of the excavated ERGS bowl. Following creation of the Main Access Road, all traffic, including all OCPP traffic and all ERGS construction traffic will enter the site at the new Main Access Road. Elm Road will then be closed.

During the development of the new Main Access Road, another new access road will also be developed, called the Southern Access Road, south of the existing Caledonia ash disposal area. The road will travel in an easterly direction to a bridge crossing of the railroad tracks, south of the existing rail loop. Once across the tracks, the road will follow an existing rail spur road to the east where it will split to provide access for OCPP employee parking, OCPP deliveries and OCPP ash hauling needs. When completed, the Southern Access

Road will provide access to the site for all OCPP associated vehicles. All ERGS construction vehicles will continue to use the Main Access Road entrance.

Post Construction Phase:
Following construction of the ERGS units, all ERGS 1 and 2 related traffic will continue to access the site via the Main Access Road entrance. All OCPP related traffic will access the site via the Southern Access Road. All IGCC related traffic will be able to use either the Main Access Road or the Southern Access Road. An on site road will exist which will allow employee traffic to travel between the ERGS and OCPP.

Construction Roads for South Site or South Site-Exp:
If the South or the South Site-Exp were chosen, road construction would occur in the same phases as in the primary site. The road usage would change however following construction of the new roads. The new Main Access Road would be used for all OCPP traffic while the new Southern Access Road would be used for all ERGS and IGCC related traffic.

Potential major changes to Oakwood Road, Elm Road, Seven Mile Road and Six Mile Road

Residents on all four roads near the UP rail tracks east of STH 32 would experience the impacts associated with road construction, such as noise and dust. The applicants have proposed changes that would make Elm Road and Seven Mile Road dead-end at the UP rail tracks, remove the dead-end on Oakwood Road, and build a railroad underpass for Six Mile Road (while moving a portion of Six Mile Road to the north). Refer to the Railroad section for further information. See Table 11-22 for data on existing traffic on these four local roads.

East Oakwood Road

Oakwood Road, east of STH 32 is currently a dead-end road, with about five residences on it. Traffic is minimal. Under WEPCO's current plans, Oakwood Road would no longer be a dead-end, but would provide vehicle access to the proposed OCPP Visitor Center, vehicle access to the lakeside for anglers, and possibly bike trail access to Bender Park.

East Elm Road

Elm Road, east of STH 32, is the main access to the existing power plant facility, with an average of over 800 vehicles per day, both trucks and cars. During plant construction, after WEPCO installs a new main access road off STH 32, then Elm Road would be closed. Elm Road would become a dead end, which would eliminate current heavy truck traffic and the vehicles of Oak Creek plant employees.

Seven Mile Road and Six Mile Road

Due to the increased rail traffic that would occur for the proposed ERGS project, the applicants are willing to fund the proposed changes to Seven Mile and Six Mile roads. The proposal includes closing Seven Mile Road east of STH 32 with a cul-de-sac at the UP railroad tracks. The traffic on Seven Mile east of STH 32, currently estimated by WE Power's consultants at an average of 200 vehicles per day and by the Town of Caledonia at a higher number, would be reduced, and the traffic on Six Mile Road, at over 3,500 vehicles, would increase by about the same amount. Signage currently directs bikes and camping vehicles to Cliffside Park. This would have to change under WEPCO's proposal. WE Power proposes to build an underpass for Six Mile Road. Since WE Power is proposing to realign the current location of Six Mile Road to the

north, existing traffic would not be disrupted during construction of the underpass. For more information, refer to the Railroad section.

Table 11-24 Existing traffic volume on local roads

Wisconsin Highway Traffic Volume Data – Year 2000 (except as noted)	AADT (Annual Average Daily Traffic) adjusted for seasons and days of week
East Elm Road	
Between Nicholson & STH 32 (near Nicholson end)	1,000
Between STH 32 & UP rail track to the east	810
East Oakwood Road	
Between STH 38 & Shepard Avenue	4,600
Between Shepard Avenue & Nicholson Road	1,400
Between Nicholson Road & Pennsylvania Avenue	1,100
Between Pennsylvania Avenue & STH 32	710
East of STH 32	Minimal
Seven Mile Road (year 1999)	
From interchange with I94 to CTH V	3,400
From CHT V to STH 38	3,300
From STH 38 to STH 32 (near STH 38 end)	1,400
East of STH 32 (estimated by Benisch)	200
Six Mile Road (year 1999)	
From STH 32 to Middle (near STH 32 end) West of RR tracks	5,200
East of Middle; east of RR tracks	3,500
Four Mile Road* (CTH G) (year 1999)	
Just east of STH 31	6,300
Near UP railroad crossing	11,300
Between STH 32 and Charles	9,300
East of Charles Road	10,200
East of Earle	6,700
East of Main	3,800

***For a description of county plans for Four Mile Road, see the following.**

Barge traffic for limestone and gypsum

The application states, "Barge traffic for delivery of limestone will be 30 barges per month for eight shipping months per year. Barge traffic for shipping of gypsum will be 50 barges per month for eight shipping months per year. Limestone delivery barges will leave the site loaded with gypsum."

Noise

Terminology and measurements

Everyday sounds are comprised of sound waves of many different frequencies. The frequency of a sound wave is measured in Hertz (Hz), with one Hz equal to one sound wave cycle per second. While the frequency range of human hearing is generally accepted to be 20 to 20,000 Hz, the ear is not equally sensitive to sounds through that entire range. The human ear is most sensitive to sound in the 500 to 8,000 Hz frequency range, however, it becomes increasingly sensitive to lower and higher frequencies as the intensity of the sound level increases.

Sound levels are measured with a device called a sound level meter in units known as decibels (dB).

When sound level measurements are taken, it is customary to use weighting systems in conjunction with the sound level meter to approximate the asymmetrical frequency sensitivity of human hearing. Three internationally standardized weighting characteristic curves, known as A, B, and C, are generally used for sound measurements. When sound levels are measured using a weighting characteristic, the measurements are designated by adding the characteristic curve letter after the abbreviation for decibels, such as 58 dBA.

The most commonly used weighting curve is characteristic A. The A weighting scale takes into account the human ear's variable sensitivity to frequency. The A characteristic deemphasizes both very low and very high frequency sound while leaving unaffected the mid-frequency ranges most sensitive to human hearing. The C characteristic does not filter out as much of the lows and highs as does the A characteristic. It approximates human hearing at higher sound levels and has been used, for example, for traffic noise surveys in noisy areas. The B characteristic filter is intermediate between A and C weighting. The B characteristic is rarely used.

Determining the noise impact of a new source

Noise level scales (as measured in decibels (dB)) are logarithmic rather than linear. This means that the decibel levels emitted by two different noise sources cannot simply be added together to determine the combined effect of those noise sources. As a generally accepted rule of thumb, two noise sources emitting sound at the same dB level would have a combined noise impact of 3 dB greater than either source alone. The same rule can be applied to weighted sound levels.

As a point of reference, sound experts generally agree that the human ear can detect changes in dBA roughly as follows:

- A change of 3 dBA or less is barely perceptible.
- A change of 5 dBA is perceptible.
- A change of 10 dBA is perceived as either twice or half as loud.

Noise also decreases with distance from the source. Assuming there are no obstructions between the noise source and receptor, the noise from a single source decreases by approximately 6 dBA for every doubling of the distance. For a noise source that is a continuous line, such as a highway, the noise levels will generally

decrease by about 3 dBA with a doubling of the distance from the source.[126] In addition to distance, noise levels can be affected by intervening structures or objects such as buildings, trees, and shrubs.

Sound levels experienced in most natural and human environments do not remain constant but can vary considerably throughout the day. Because of this fact, a single sound level cannot adequately describe the ambient sound environment. A variety of noise descriptors are typically used in order to accommodate the time-varying or temporal characteristic of environmental sound. One type, called percentile descriptors, are commonly used in noise studies. These descriptors identify A-weighted sound pressure levels that are exceeded for specific percentages of time within a noise monitoring period. Typically, the levels reported include those exceeded 10 percent, 50 percent, and 90 percent of the time and are reported as L_{10}, L_{50}, L_{90}. The $L_{90,}$ or residual noise level, is defined as the nearly constant, low level of noise that is found in the environment and represents the lowest sound levels recorded during a monitoring period. The L_{10} is often called the intrusive noise level and represents the highest sound levels occurring in the area during the monitoring period. Another descriptor is the L_{eq} or equivalent sound level. The equivalent sound level uses the average A or C-weighted sound levels recorded. The L_{eq} is a better overall descriptor because it combines sound level, frequency, and temporal characteristics into a single-value. The US Environmental Protection Agency (EPA) has encouraged the use of the L_{eq} for representing environmental sound levels.

Applicable local ordinances

The city of Oak Creek and the town of Caledonia have noise ordinances regulating loud and unnecessary noise. These ordinances do not set specific noise level thresholds for noise sources or receptors and are not readily applicable to industrial sites.

The city of Oak Creek has negotiated a conditional use permit (CUP) with the applicant that would establish two permanent noise monitoring stations. Station 1 would be located near the eastern edge of the Barton Oaks Subdivision just north of Elm Road, about 600 feet west of the railroad tracks. Station 2 would be located within the plant boundaries immediately north of Elm Road and midway between the railroad tracks and the proposed North Site. The CUP sets noise limits for both the construction phase and operation phase of the project, measured at Station 1. During construction, allowable noise limits would be significantly higher than those allowed during actual operation of the plant. Construction noise limits outlined in the CUP vary from 0 to 75 dBA (one hour L_{50}) depending on the phase of construction, day of the week, and time of day. During operation of the plant, the CUP noise limit, measured at Station 1, would be 50 dBA (10 minute L_{eq}) and 60 dBC (10 minute L_{eq}). The CUP proposes a fine of $1,000 per day for non-compliance. No CUP has been negotiated with the town of Caledonia.

Existing noise environment

The existing noise environment around the proposed project sites and the estimated noise from the proposed facility have been analyzed in terms of A-weighted (dBA) and C-weighted (dBC) sound scales as well as the frequency bands from 16 Hz to 8,000 Hz. The dBA scale enables an estimate of the noise that people would hear. The dBC scale enables an estimate of low-frequency noise that people might hear or

[126] B. B. Marriott, Practical Guide to Environmental Impact Assessment.

feel. The frequency band analyses might reveal whether certain types of noise are prominent and need to be controlled in certain ways.

In accordance with the PSC's Noise Assessment Measurement Protocol, an ambient noise level survey was conducted around the project site. Sound level measurements were collected at five measurement points (MP1-5) to determine ambient sound levels prior to construction and operation of the proposed ERGS project (see Figure 11-3 and 11-4). The five measurement points were selected in order to characterize a variety of local environmental conditions, ranging from a park setting at MP1, to residential type settings at MP3 and MP4. Because the North and South Sites are relatively close to one another, the ambient sound level data collected from the five MPs are adequate for both sites.

Sound level readings were recorded between October 2 and October 4, 2001 over 10-minute periods during morning (6:00 – 8:00 a.m.), midday (12 noon – 2 p.m.), evening (6:00 – 8:00 p.m.) and late night hours (10 p.m. – 12 Midnight). At each MP, octave band (L_n) unweighted sound levels were measured in addition to A-weighted and C-weighted decibel levels.

The survey was conducted during calm weather conditions to reduce or eliminate noise from wind, rain, or other weather related factors. Predominant noise sources were also noted. Because the existing OCPP is a base load plant that is operating almost all of the time, the noise it generates was considered to part of the ambient noise setting. Thus, all ambient noise measurements were taken with the OCPP in operation.

Audible noise sources during the survey included natural sounds, such as the sound of waves from the lake at MP1 and fairly prominent traffic noise near residences along STH 32 (MP4). Noise from the existing OCPP was barely audible during the survey. Table 11-23 shows ambient sound measurements taken around the project site. The table lists the L_{eq} (equivalent continuous sound level-a measure of average energy representing the steady state noise level during the measurement period) reported in dBA and dBC and the L_{10}, L_{50}, L_{90} (sound levels exceeded 10 percent, 50 percent, and 90 percent of the time during the measurement period) all reported in dBA.

Background ambient sound levels (L_{90}) represent the lowest sound levels recorded during the survey period. These low intensity sound levels occur only for short periods of time during the day (L_{90} sound levels occur during 10 percent of the survey period and do not represent the predominant sound level in the area). The lowest L_{90} values typically occur during evening hours or at noon. The L_{90} values ranged from 41-45 dBA at MP1 which is in a park like setting located north of the project site. MP2 and MP3 are located adjacent to a dense residential area north of Elm Road and just west of the existing power plant boundary. Background ambient sound levels in this area ranged from 39 to 45 dBA. These sound levels are generally considered to be similar to those found in most normal suburban residential settings. At MP4, background sound levels were higher, reflecting a significant amount of noise from STH 32. At this location, background sound levels varied from 35 dBA after 10 pm to 52 dBA at 6 pm. The area near MP4 would be classified as a noisy urban environment during times when traffic levels are high.

The equivalent continuous sound level (L_{eq}) measured in dBA, as expected, are higher than L_{90} values and are more representative of the overall sound levels experienced around the existing power plant. The L_{eq} values ranged from 42 to 63 dBA. Near the residential area north of Elm Road the L_{eq} at MP3 ranged between 46 and 57 dBA and at MP2 the range was from 51 to 63 dBA (See Table 11-25). These values are higher than those typically found in quiet residential settings.

Figure 11-5 SCPC and IGCC noise contours and other noise emission sources – North Site

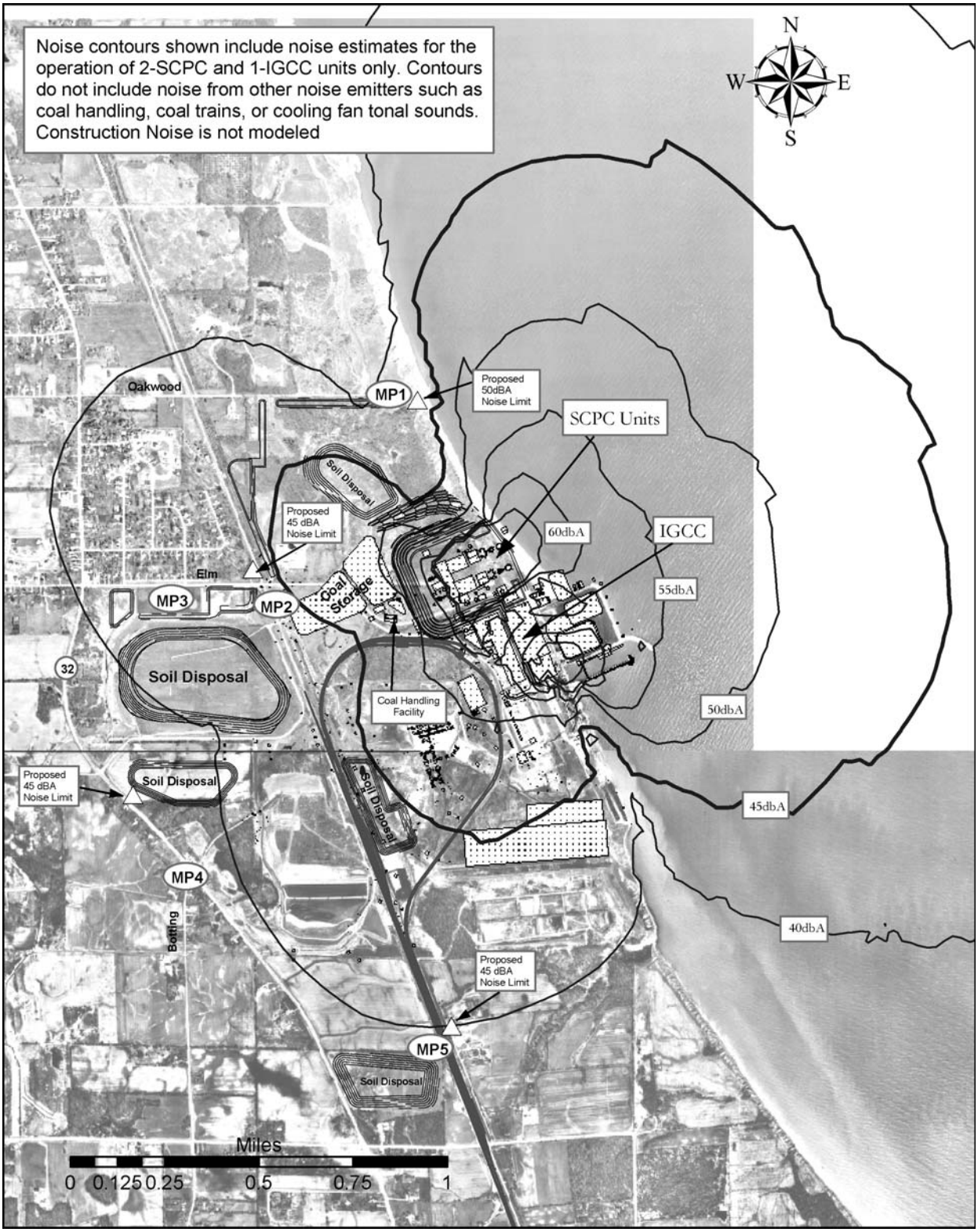
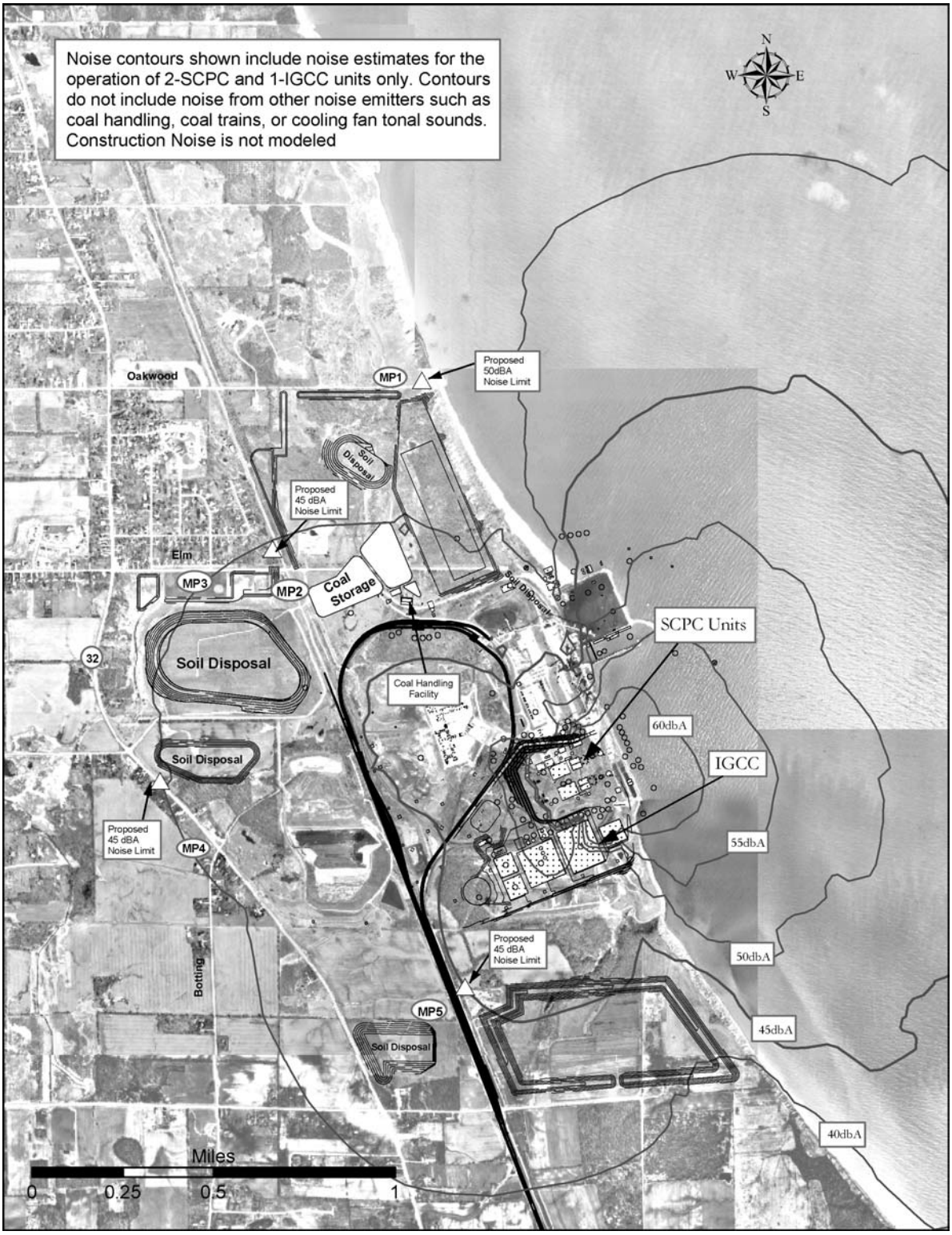


Figure 11-6 SCPC and IGCC noise contours and other noise emission sources – South Site



A comparison of the L_{eq} in dBA and dBC shows much higher dBC levels. The dBC levels measured at MP2, for example, ranged between 64 and 70 dBC. This results from relatively high levels of low frequency sound in the 16 to 250 Hz range. Sources of low frequency sound in the area are most likely from traffic noise; however, some portion of the low frequency component may originate at the existing power plant.

Table 11-25 Ambient sound measurements around the ERGS project site – measurements were taken between October 2 and October 4, 2001

MP	Time	L_{eq} (dBA)	L_{eq} (dBC)	L_{10} (dBA)	L_{50} (dBA)	L_{90} (dBA)	Arithmetic Average L_{90} dBA	New Plant Plus L_{90} dBA	Proposed Plant Increment dBA
MP1	6:00 AM	51	61	53	47	45			
	12:00 PM	50	58	49	47	45			
	6:00 PM	48	59	51	47	46			
	10:00 PM	49	60	51	45	41			
							44	51	6.8
MP2	6:00 AM	63	70	60	48	44			
	12:00 PM	57	67	54	43	39			
	6:00 PM	51	64	53	47	45			
	10:00 PM	62	69	61	46	40			
							42	46.8	4.8
MP3	6:00 AM	57	67	62	47	43			
	12:00 PM	56	66	59	48	42			
	6:00 PM	47	58	48	45	43			
	10:00 PM	48	57	47	42	40			
							42	46.8	4.8
MP4	6:00 AM	63	72	67	60	50			
	12:00 PM	62	74	65	58	51			
	6:00 PM	60	68	63	59	52			
	10:00 PM	55	65	59	44	35			
							47	49.1	2.1
MP5	6:00 AM	56	64	58	47	44			
	12:00 PM	43	58	46	41	39			
	6:00 PM	48	57	49	47	45			
	10:00 PM	42	55	44	41	38			
							42	46.6	5.1

Modeling the proposed project impacts

In order to estimate the sound levels likely to be produced by the proposed project, consultants for the applicant used noise levels produced by the Pleasant Prairie Power Plant in Kenosha County as a surrogate. Sound level measurements were taken around the Pleasant Prairie Power Plant on November 11, 2001.

The Pleasant Prairie power plant is a 1,200MW coal fired facility similar to what is planned for the ERGS. It was assumed that the proposed power plant would represent, in terms of sound produced, sound levels roughly equivalent to the Pleasant Prairie power plant. Since Pleasant Prairie is not an SCPC facility, the consultant included a 2 dBA adder to the noise level estimates.

The sound levels recorded at the Pleasant Prairie Power Plant were then entered into a site noise model in order to estimate the sound levels that might be produced by the proposed power plant. The Pleasant Prairie noise levels were recorded in dBA only. No octave band analysis was performed. This means that the surrogate sound levels used to represent the proposed power plant will not give any insight into the potential for low frequency sound impacts.

Surrogate noise levels were also used for the IGCC component of the proposed project. Since IGCC plants are not common, sound levels produced by such facilities are not readily available. For this case, consultants for the applicant used the sound profiles of a modern combustion turbine power plant of similar size.

Operational noise impact

The estimates for the sound levels produced by the proposed SCPC and IGCC units were entered into a computer model that calculated the estimated sound contours for sound levels that would be produced by the proposed project for each site (See Figures 11-5 and 11-6). The expected noise levels produced by the proposed plant were compared to the average L_{90} (dBA) ambient sound measurements. Comparing expected project noise levels to the L_{90}, as opposed to the L_{eq}, results in a more conservative or worst-case estimate of noise impact. This comparison to ambient noise levels provides an estimate of the likely increases to the local noise environment.

The sound profiles for the two sites are very similar. Impacts to the local community shift to the north for the North Site and correspondingly, move to the south for the South Site and the South Site-Exp. The North Site would potentially have a greater noise impact to the residential community immediately north of Elm Road. Using the South Site would shift some of the impact south to potentially affect residences along STH 32 near Botting Road and those residences located south of the property and just east of the UP tracks near MP5.

Table 11-25 lists the expected noise levels resulting from the new plant and lists the increment in dBA over the average L_{90} values from the ambient study. The expected increment for the operation of the SCPC and IGCC varies from an additional 6.8 dBA for MP1 to 2.1 dBA for MP4. Generation plant operation noise would be most noticeable at MP1 and barely perceptible during the quietest hours of the day at the remaining MPs.

According to this analysis, sound levels from the proposed project that are at or below 45 dBA are not expected to add perceptibly to the ambient sound environment. The applicant has identified at least two

locations along the 45 dBA sound contour line where it would be most appropriate to apply a voluntary noise emission limit. These emission limit points are identified in Figures 11-3 and 11-4. For the North Site a 45 dBA limit is suggested near MP-2 and for the South Site a 45 dBA limit is suggested near MP-5. In addition, a 50 dBA limit is suggested near MP1 and a 45 dBA limit north of MP4. The analysis identifies noise from the SCPC equipment as the dominant noise source for all sites.

The plant design currently calls for the SCPC unit to be placed below the existing grade at both sites. The excavation for the plant sites would create an embankment to the west and north of either site that would tend to attenuate sound emissions from the SCPC units.

The above analysis does not take into consideration other potentially significant noise sources associated with this project. Omitted from the sound contour analysis are noise emissions from the coal handling facility located on the northwest corner of the project site and additions to the noise environment that would be associated with significant increases in rail traffic.

Other noise sources

Tonal noise

Fans (centrifugal, axial, and propeller) produce a tone at a particular frequency known as the blade passing frequency. The tone is created as the rotating blade passes a vane or a strut which creates a pulsed frequency that results in a radiating tonal noise. Tonal noise is generally more noticeable than the atonal sounds commonly experienced in the environment. One source of tonal noise found at power plants is the wide variety of cooling fans that are often used. Tonal fan noise can be managed by designing cooling fans to strict limits for noise emissions.

Coal unloading and handling

While the noise produced by the proposed units would be relatively steady, noise from coal unloading and handling would vary considerably during the day. The coal handling facility would be located on the northwest side of the project site near Elm Road and would be between 1,200 and 2,600 feet from the nearest residences. Because the amount of coal used at the site would approximately double with the addition of the proposed generation, it can be assumed that coal handling and unloading activities would increase accordingly.

Potential noise sources at the coal handling facility would include dumper cars, coal crushers, and noise from the transfer tower, mobile crawlers, tractors, and bulldozers. Four potential noise sources were selected to represent noise at the coal handling facility. Estimates of dBA, dBC, and octave band sound levels were provided for enclosed rotary car dumpers, coal crushers, transfer tower, and mobile crawlers, tractors, and bulldozers. The estimated individual sound levels at a distance of 2,600 feet for these sources would vary from 37 to 47 dBA and from 52 to 58 dBC. The higher dBC levels indicate the presence of a distinct and prominent low frequency component to the sound sources. The closest coal storage area to residences would be the 45-day inactive storage pile. This coal would only be used when other coal sources are unavailable or cannot be delivered. The active coal storage area would be located in a building which would muffle coal handling noise under most conditions. Overall noise from the coal handling site could be higher than reported because of the cumulative effect when individual sound sources are combined.

At full capacity, two to four coal trains would be unloaded per day. It would take approximately six hours to unload a 135-car coal train. It is expected that in order to run the proposed facility at full load for any 24-hour period, at least two coal crushers would be required to run for at least ten hours per day. The total conveyor operating time would range from 12 to 24 hours per day.

The best estimate from the applicant's noise study indicates that the maximum noise level at the closest sensitive receptors, just north of Elm Road, would be from 50 to 55 dBA. This exceeds the voluntary noise limit of 45 dBA suggested in the applicant's noise assessment study. Because the noise from the coal handling operation would not be constant but transient and impulsive in nature, it is likely that it would actually be more noticeable especially in a residential setting. Noise from the coal handling facility would be in addition to the SCPC and IGCC noise emissions produced by the power plant itself.

Coal train traffic

Coal trains would approach the site primarily from the south and be routed along a looped rail spur just south of the coal handling facility. Rail delivery would be the applicants' preferred method for delivering coal to the site. Noise from train traffic include engine noise, rolling noise from rail cars, uncoupling and coupling noise, and starts and stops that result in noise as cars are engaged and begin to move. The applicant has not provided estimates on the likely intensity of these noise sources.

The number of coal trains would roughly double for a project that includes two SCPC units and one IGCC unit. This would require eleven 135-car or twelve 125-car coal trains per week. Currently, about five or six 125-car coal trains per week arrive at the plant. Coal trains can arrive at any time of day. Other rail users are responsible for an additional seven trains per week with 80-100 cars and two trains per week of about 20 cars each. If fewer units are built, the increase in rail traffic would be reduced. For example, if the IGCC plant is not constructed, the number of coal trains would drop from eleven to nine per week. At full capacity (two SCPC units and one IGCC unit) the proposed project would result in a roughly 40 percent increase in local train traffic. The most significant noise impact would be experienced by residences closest to the rail lines approaching the plant.

The applicant proposes to institute coal train handling changes that would reduce the level of noise from train traffic. These changes include:

- Install automatic switching to eliminate starting and stopping
- Reduce the number of on-site repairs (currently inspection pulls out an average of five cars on every train for maintenance. This requires additional stopping/starting and coupling/decoupling of cars)
- Install an indexer for dumping or unloading coal cars (eliminates starting/stopping car and engine noise and reduces the amount of time required to unload a train).

Coal delivery by boat has been proposed as an alternative to rail delivery. This is an expensive alternative that would require dredging of the lake to create a port capable of handling the coal ships. Because of inaccessibility during cold weather, rail deliveries would be required from January through March. This means that costs for the upgrades to the rail system on the project site would still be incurred. Using ship delivery would also require a doubling of the on-site coal storage and would require more use of the reserve coal pile. Because of the cost and difficulty in receiving coal by ship, the applicant prefers to rely on rail delivery for this project.

Shooting range

Use of the expanded South Site-Exp would result in the need to move and rebuild the gun range which is now located near the south boundary of the property. A new shooting range would be constructed south of the existing shoot range on the north side of Seven Mile Road on a property that was previously a horse farm. The new shooting range has not yet been designed; however, any new shooting range would be designed to meet military safety standards in order to eliminate any danger from stray rounds. Noise would be somewhat reduced by the standard safety design features. The shooting range would be used only for small arms (pistols and rifles) target practice. The range is presently used by local gun enthusiasts, law enforcement agencies, military reserve units, and the National Guard. Trees and other landscape features may also serve to reduce audible noise generated at a gun range. However, some noise impact would likely be experienced at the closest residences which include the four houses directly east of the railroad corridor north of Seven Mile Road, the homes between STH 32 and the railroad on the south side of Seven Mile Road, and the home at the east end of Seven Mile Road.

Construction noise impacts

Sources of construction noise include increased traffic to and from the construction site and noise created by construction machinery at the site.

Individual equipment noise

Construction noise is typically high intensity, intermittent, and can be impulsive. Impulsive high intensity sounds are noticeable especially when they are introduced into residential settings. The primary noise sources at a construction site are likely to be the diesel engine drive systems that power most construction equipment. Because of the size of this project the work schedule would most likely require six-day work weeks with work continuing 10 to 16 hours per day. This would suggest that noise impacts could continue into the evening hours and extend into the weekend. Typical construction noises, modeled for a power plant project in southeastern Wisconsin, are listed in Table 11-26. Some noises during construction could be very loud (ranging from 120 -134 dBA at 50 feet from the event) occurring during short-term steam or air blows.

Table 11-26 Estimated maximum noise levels for typical construction equipment (dBA)

Construction Equipment	Maximum Noise Level (dBA) Typical Range = 50 Feet
Steam blow off (4-8-inch line)	124-134
Air blow off (4-8-inch line)	120-130
Blasting	93-94
Dozer (250-700 horsepower)	85-90
Front end loader (6-15 cubic yards)	86-90
Trucks (200-400 horsepower)	84-87
Grader (13-16-foot blade)	83-86
Shovels (2-5 cubic yards)	82-86
Portable generators (50-200 kW)	81-87
Derrick crane (11-20 tons)	82-83
Mobile cranes (11-20 tons)	82-83
Concrete pumps (3-150 cubic yards)	78-84
Tractor (3/4 to 2 cubic yards)	77-82
Unquieted paving breaker	75-85
Quieted paving breaker	69-77

Noise from the construction of the generation buildings and units themselves would be significantly reduced because the SCPC units, for example, would be constructed in an excavated depression facing the lake. This is true for both sites. It is expected that it would require as much as four years to build the first SCPC unit. The closest residences to the North Site are about one-half mile from the SCPC unit construction site and almost a mile from the proposed IGCC site. General construction noise at the North Site would primarily affect residences located along and near Elm Road. Other construction noise sources that are likely to be noticeable to residences north of Elm Road would be from the construction of the coal handling facility and from activity at the spoil fill sites north and west of the North Site. Residences near these areas would be affected regardless of which site was selected. The applicant expects approximately 3.5 years to complete the coal handling facility.

For the South Site (or South Site-Exp), construction of the SCPC and IGCC units would take place at a considerable distance from the residences along Elm Road. The closest residences are between 0.5 and 0.75 mile south and west of the proposed IGCC plant and SCPC units. Use of the South Site would move the IGCC plant further away from residences that are located just south of the WEPCO property.

Both the distance to sensitive receptors and construction inside the excavated site would serve to reduce noise impact to the closest sensitive receptor.

New railroad construction

Extensive upgrades to the existing rail system would be required not only on the plant property but along the existing rail line south of WEPCO's property. From the new rail loop south to Five Mile Road, from one to four sets of new track would be added alongside the existing tracks. This would increase construction noise disturbance in the immediate vicinity of the rail construction area. The upgrades to the rail system are currently scheduled for 2004 and would take approximately 34 months to complete. The hours of construction are not known at this time. The type of work would most likely require the use of earthmoving equipment to properly prepare and grade new rail beds. Heavy equipment would also be used to deliver and install new track. Construction noise would be similar to that described for other phases of this project. Limiting construction to weekdays and day time hours would serve to reduce, to some extent, the overall annoyance associated with noise from rail construction. Homes along the railroad ROW would be most affected by this construction activity.

Traffic noise

An important and potentially significant source of noise during construction would result from increases in truck traffic along the roads leading to and from the site. STH 32 and Elm Road are likely to have significantly increased heavy truck traffic. Depending on how many units are built, traffic increases would be sustained over a period of five to eight years. For one SCPC unit, the construction period would last about five years and the traffic would increase by about 1,040 vehicle trips per day. If all three units are built, the construction period would be about eight years with a peak traffic increase of about 2,780 vehicle trips per day. A detailed account of the estimated increase in traffic can be found in the Traffic section of this chapter.

It is unclear at this time how traffic would approach the project. At present, plans include new access to the plant at the north end of the project site. Oakwood Road would be extended east into the project property.

Another access point is expected to be developed at Botting Road and STH 32. In addition, Elm Road could also be used during construction.

Because details on access points have not been finalized, it is difficult to assess noise impacts due to traffic. Traffic increases would result from the arrival and departure of the workforce and from heavy truck traffic delivering machinery and materials. Noise created by the increased truck traffic could be significant. Because traffic noise is mobile and moves along linear paths the noise impact tends to have a broader reach. Decibel reduction due to increased distance from the source is about half that for a stationary noise source. This means that noticeable changes to the ambient noise environment would extend further. Traffic noise impacts can be reduced by routing vehicle traffic through areas that have fewer residences and by limiting heavy truck traffic to weekdays between 7:00 am and 5:30 pm.

Earth moving

As proposed, an enormous amount of soil would need to be excavated in order to begin construction of the first SCPC unit. The total amount of excavation required for this project, assuming that at least two SCPC units are approved, ranges from 5,500,000 to 10,000,000 cubic yards of soil depending on the site and whether the IGCC unit is eventually built. This type of soil excavation would require the use of very large earth moving equipment. Noise levels associated with this kind of machinery are likely to be fairly intense with a predominant low frequency component. Low frequency sounds have longer wavelengths and tend to travel further than high frequency short-wavelength sounds. The noise from the excavation site would be mitigated, to some extent, by the distance to the nearest sensitive receptors which is about 3,400 feet for the North Site and about 3,000 feet from the South Site. In addition, as excavation proceeds, much of the work would take place below grade so that the noise produced would radiate east onto the lake rather than to the west and south where residences are located.

Excavated soil must be transported from the building site to the disposal site. At this time details on how this would be accomplished have not been provided by the applicant. A total of five on-site soil disposal areas would be utilized (see Figures 11-3 and 11-4). Regardless of the site selected for the new units, at least two soil disposal sites would be located near a relatively dense residential area located north of Elm Road and east of STH 32 (near the Barton Oaks Subdivision). One soil disposal site, the South Ash Landfill, is located just south of Elm Road in an area that has been used for ash disposal adjacent to Haas Park. The northern edge of this disposal site is about 700 feet from residences north of Elm Road. It is estimated that approximately 3,300,000 cubic yards of earth would be placed at this location alone. The other disposal site is located northeast of Elm Road and is about 1,800 feet from the same residential area. Between 500,000 and 1,000,000 cubic yards of fill would be placed at this site.

The applicant has estimated that all earthmoving activities would require about one year to complete. The applicant intends to use between 30 and 35 large earthmoving vehicles during the mass excavation phase of the project. Caterpillar 631G scrapers and/or 769D mining trucks with a rated capacity of approximately 31 cubic yards or similar machinery would be used. For the mass excavation operation the applicants plan to use a six-day work week with two 10-hour shifts per day. The nominal number of vehicle round trips per day is estimated at about 1,400.

The noise from the large number of heavy earthmoving vehicles moving constantly through the area would likely be significant for the Barton Oaks Subdivision and for residences located along Elm Road just west of

the South Ash Landfill. Once soil is deposited at the site, heavy earthmoving equipment must be used to spread the soil. In terms of elevation, the disposal site is above the residences to the north. There would be little to shield or block the noise from either disposal site. Over time, the deposited soil would rise approximately 45 to 50 feet above the level of Elm Road. With little to block the sound of heavy equipment, it is likely that the increase in noise from construction would be quite noticeable. Some reduction in noise impact could be achieved by first placing fill on the outside edges of the fill site to form a level of berm. Then fill could be brought in behind the newly created berm. Because of the amount of soil and the size of the disposal sites, this approach could only be done in stages. This could reduce some of the noise created while filling in behind the raised edge.

Screening berms are most effective in reducing high frequency (short wavelength) noise. Berms are less effective in blocking long wavelength (low frequency) sound. Noise impacts created during the earthmoving could also be reduced by limiting earth moving activities to five days a week between 7:00 am and 5:30 pm. However, given the large amount of soil to be moved, and the aggressive construction schedule, the project would require double ten-hour shifts during the mass excavation phase in order to meet schedule expectations. The CUP does set noise limits for the construction and earthmoving phases of the project. However, the limits defined in the CUP are dBA sound levels. A significant portion of the sound spectrum created by construction and earthmoving activities would be in the low frequency range. The A weighting curve deemphasizes low frequency sound.

Recreation

This section describes each of the local area parks as they presently exist and any possible changes to the park and adjacent lands due to construction of the proposed ERGS project. It also describes the potential for construction of a recreational trail and shoreline fishing access on WEPCO's property.

Haas Park

Existing environment

The city of Oak Creek's Haas Park, on the south side of Elm Road, is located on land given to the city by WEPCO. WEPCO-owned land surrounds the park on all three sides. The city of Oak Creek 1998 Park and Open Space Plan describes Haas Park as follows:

> "Haas Park is a 7.5 acre site located at 4215 East Elm Road and donated to the City by the Wisconsin Electric Power Company (WEPCO) in 1975 and named after the Haas family who owned and homesteaded this land prior to WEPCO's purchase of it."

This park has a play structure, and areas for basketball, baseball, volleyball, and tennis. There is also a wooded area at the western end of the park.

Elm Road currently has a lot of traffic, including truck traffic, because it serves as the main access road to the existing OCPP. This results in safety issues for families, and especially children, from the Barton Oaks Subdivision, that need to cross Elm Road when they walk to the park.

Proposed changes to lands adjacent to Haas Park

There is a screening berm to the south of the park that would be extended for the ERGS project. In the past, neighborhood children have used this hill for sledding. Berms would also be added just beyond the east and west ends of the park. To the south of the existing screening berm is the South Oak Creek Landfill, which is kept covered with grassland to encourage birds. The applicants plan to add soil to this landfill.

Under the applicants' proposal for all alternatives for the ERGS project, Elm Road would cease to be an access road to the OCPP, and would be closed east of the railroad tracks. This would increase the safety of Haas Park users and make the park more accessible to children.

The existing power plant chimneys are currently visible from Haas Park. Three new stacks or chimneys would be added if the entire ERGS facility is built. The new stacks for the SCPC units would be higher and larger in diameter than the OCPP stacks. Refer to the Visual Impacts section of this chapter for more information.

Bender Park

Milwaukee County's Bender Park serves a regional and metropolitan population. It is located north of and across East Oakwood Avenue from WEPCO-owned land. The entrance to Bender Park is on the north end of the park, at the end of Ryan Road (STH 100). The park has a marina along the lakeshore and trails through a northern upland area. The southern portion of the park is undeveloped. The city of Oak Creek 1998 Park and Open Space Plan recommends supporting major expansion of the marina at Bender Park, and development of a premier 18-hole championship golf course. However, county budget constraints and conflicts over the use of county land have limited development at Bender Park to date.

Proposed changes to land adjacent to Bender Park

The northern portion of WEPCO's property is covered in grassland and shrub land. Toward the center of this northern portion is the North Oak Creek Landfill, which would be used as a construction laydown area, and as a place to deposit excess soil. After construction of the proposed generating units is complete and the plants begin operating, WEPCO would remove the ash from this landfill to burn in the proposed SCPC units. This ash mining would be expected to occur over a 30-year period. The landfill and any disturbed surrounding land would be planted in grasslands with a seed mix chosen for its value to birds. WE Power would also construct a screening berm south of Oakwood Road. The end of Oakwood Road would be extended to the plant site to provide access to the ERGS and OCPP for fishermen if the new facilities are built on the North Site. It's also possible that it would provide access to Bender Park for hikers and non-motorized bikes, as part of the Milwaukee-Racine County recreational trail.

Figure 11-7 View of existing OCPP from Bender Park looking south

Figure 11-8 Photo simulation of the view from Bender Park after construction of the ERGS

The existing power plant facilities are either difficult or impossible to see from the developed facilities (camping areas, hiking areas) of Bender Park. However, they are prominent features as seen from the shoreline of these parks. Figure 11-7 is a photo that shows the existing view from Bender Park looking south. Figure 11-8 is a photo simulation of how the plant site would look from the park's shoreline, after the construction of the ERGS. WE Power has stated that it intends to use the same type of shoreline stabilization techniques on-site as those used at Bender Park, so that there would not be any visible sign of change in land ownership. Refer to the section on Visual impacts.

View from championship golf course in Bender Park

The city of Oak Creek would like to see development of the northern portion of Bender Park as a championship golf course. The City has expressed concern that having a power plant in the background view from the golf course would damage the course's popularity. The view of the plant from the course would depend on the course's location, layout, topography, and ornamental plantings of trees or shrubs. The distance of the proposed golf course from the northern boundary of WEPCO-owned property is about 0.75 mile. The distance of the golf course from prominent plant facilities, such as the turbine enclosures and chimney stacks, would probably be at least one mile. Refer to the section on Visual Impacts for further information.

Cliffside Park

Racine County's Cliffside Park serves a regional and metropolitan population. It's located south of and adjacent to WEPCO-owned land. The entrance to Cliffside Park is toward the southern end of the park, off Michna Road. The developed portion of the park is on the south side, adjacent to a high-density residential area. This portion of the park has no direct access to the lakeshore. It's developed for camping, baseball, tennis, picnics, and similar outdoor activities.

The northern portion of Cliffside Park is in conservancy. The 22-acre portion along the lake is classified as a natural area of county or regional significance, and is located in a primary environmental corridor, intended for preservation. About 60 acres located directly south of Seven Mile Road is an abandoned agricultural area, containing some rare bird species.

The Park and Open Space Plan for the town of Caledonia, prepared in April 2000, by SEWRPC recommends, that for parkland purposes, Racine County acquire an additional 305 acres of land along the Lake Michigan shoreline within the town of Caledonia. In addition, it recommends development, in Cliffside Park, of a nature center, a winter sports area, boat launch facilities, management or restoration of native plant communities, and additional parking lots, rest rooms, shelters, and trails for hiking, biking, and skiing. Racine County has a Master Plan for Cliffside Park that includes an interpretive center and nature trails on the northern, undeveloped portion of the park, but plans are currently on hold due to problems with high groundwater and budget constraints.

Proposed changes to lands adjacent to Cliffside Park

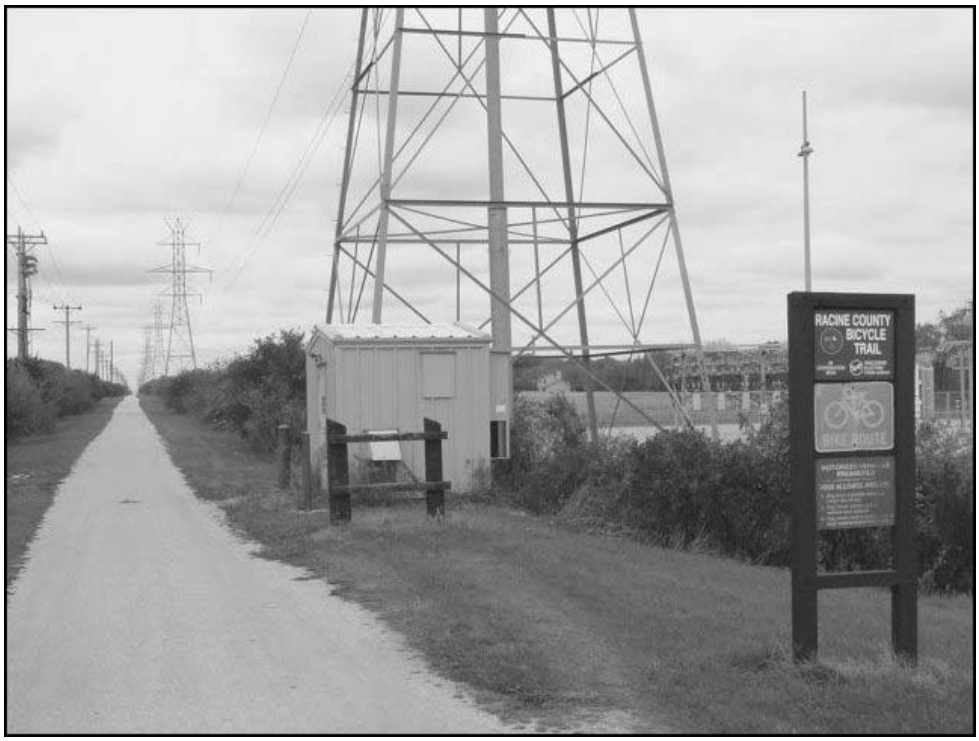
WEPCO intends to keep its land along the lakeshore, just north of Seven Mile Road, as a natural area. However, use of the South Site-Exp would result construction in this area, because the federal/state shooting range would be moved or relocated onto a portion of this property. The shooting range would be located far enough inland to avoid the environmental corridor along the lakeshore.

The existing power plant facilities are either difficult or impossible to see from some of the developed facilities (camping areas, hiking areas) of Cliffside Park. They are, however, prominent landscape features as seen from the shoreline of this park, although the shoreline is somewhat difficult to access. Again, WE Power has stated that it intends to use the same type of shoreline stabilization techniques as those used at Bender Park, so that there would not be any visible sign of change in land ownership. Refer to the section on visual impacts.

Milwaukee – Racine County Recreational trail

Milwaukee and Racine Counties both have recreational trails that use portions of the UP railroad corridor. Currently the Racine County trail ends at Seven Mile Road and the trail in Milwaukee County begins the boat launch in Bender Park. No connection across WECPO's property and adjacent lands to the north exists at the present time. This recreational trail is for bikers, hikers, and cross-country skiers, but not for motorized vehicles. Figure 11- 9 shows the recreational trail as it passes through northern Racine County. The possible connection of the two trails has been a subject of great public interest during the development of the ERGS application. More information about how the applicants are planning to accommodate that interest is discussed below.

Figure 11-9 Bike and recreational trail in northern Racine County (looking south from Seven Mile Road)



Recreational uses on WEPCO-owned property

The public currently uses WEPCO-owned land for some recreational purposes. Fishermen consider the warm water around the existing plant discharge to be a good place to fish year-round. Although Elm Road is owned by the city of Oak Creek, it is sandwiched between WEPCO-owned properties and provides access to the existing power plant site. Residents of the Barton Oaks Subdivision often walk to the end of Elm Road and back for exercise and pleasure. The road ends on the bluff above the shoreline, but walkers can see the lake at intervals along this road, and for much of the distance no power plant facilities are visible. (The top of the LNG storage tank is always visible.) Some residents are concerned about the loss of this pleasant walk with lake views.

Recreation-related proposals

WE Power has shown interest in promoting recreational use of the power plant site, after the new units are built, but it has made no long-term commitment at this time. Possible plans include:

- Use of WEPCO property to connect Milwaukee County's recreational bike trail to a similar trail in Racine County, including provision for bikes to cross over the existing rail tracks and any new highway bridge or underpass built to accommodate increased rail traffic.
- Possible use of WEPCO property to access the lakeshore and Bender Park - this would only apply if the North Site is used.
- Building facilities for fishermen, including parking, piers, and warming houses - this would only apply if the North Site is used.
- Developing an educational Visitors Center to provide information on energy issues in general and the OCPP and the ERGS in particular.

In addition, WE Power states that it plans to protect, as much as possible, existing wetland and wooded areas, and to plant grassland with seeds that encourage wildlife, especially birds. This may contribute to the enjoyment of neighborhood or area birdwatchers.

Recreational trails

A link across WEPCO-owned land is needed to connect the existing Milwaukee and Racine County recreational trails located near the OCPP. WE Power hosted a seminar on the possible location of a recreational trail on WEPCO property that would connect to the existing county trail systems. The seminar, including county and municipal planners, was held on April 23, 2002. The final details of trail development are not complete, but the planners approved a preliminary location for the recreational trail that the applicants are using in their site plans. For the most part, the new trail would cross from the railroad corridor to near STH 32 somewhere around Seven Mile Road, and then back to the railroad corridor on Elm Road. It would continue adjacent to the railroad track to Oakwood Road and then include a possible connection from Oakwood Road to Bender Park. Most of this distance would be on WEPCO property. If Milwaukee County's plans for Bender Park are not certain at the time that WEPCO would build a trial, minimum physical changes would be made to allow trail use, while maintaining flexibility for future plans.

It is likely that the trail on WEPCO property would look similar (asphalt-covered or paved) to the existing county trails, and that a planned Visitor's Center could provide a resting place for trail users. The applicants'

proposed railroad plan includes provision for bikers to cross Six Mile Road safely. Under the plan, Seven Mile Road would dead-end at the UP railroad track. Possible ways for trail users to cross the tracks safely at Seven Mile Road include a private road under the rail tracks or a raised, wooden bridge. Refer to the Railroad section for more information.

Connection of recreational trail to Bender Park

The recreational trail connection between Bender Park and the WEPCO property is the last piece of the recreational trail that would be built because WE Power intends to use the North Landfill as a laydown area throughout the construction period. The Milwaukee County parks representative at WE Power's April 23, 2002 meeting on the recreational trail, said that delayed construction would be good, as it would allow time for development of Bender Park plans. WE Power held another meeting on the recreational trail on March 27, 2003. More detail on the recreational trail is included below.

The city of Oak Creek requested that WE Power close Elm Road to the public (due to security concerns), and instead concentrate on providing access to Bender Park. WE Power currently plans to provide access from the intersection of Seven Mile Road and the UP railroad track through the power plant property to Bender Park.

Shore access and fishing

Concerns about the effect of the ERGS facility on local fish populations are addressed in Chapter 8. Based on interested generated by the public, the applicants have developed some initial ideas for fishing access on the north end of the property as close to the proposed warm water discharge (for the North Site) as possible. They have also sponsored meeting with local fishing groups to get feedback. Initial designs include an access road from the end of Oakwood Road, that would parallel an access road for plant workers eastward onto the plant site. The initial concept included a parking area for fifty vehicles, a warming structure, and a fish scaling area. At the first meeting, the fishing organization requested more parking and no fish scaling area. If either of the South Site options are utilized, WEPCO would place the warm water discharge further south along the shoreline, toward the middle of the plant site, and there would be no fishing access due to security concerns.

Visual Impacts

Visual effects are difficult to quantify, because ultimately they depend on the aesthetic tastes of individuals. Factors to consider include:

- The existing visual environment, or the context of the viewed object
- The vantage point of the viewer, i.e. from where the object is visible
- The probable activity of the person looking at the object
- Potential mitigation techniques, including distance, berms, plantings, and object design.

Existing visual environment

Figures 11-10 to 11-13 show some of the visual features of the area surrounding WEPCO's Oak Creek property. These include examples of the wetlands/woodlands, farmlands, residences, and trails.

Electric transmission lines are also a strong element in the visual landscape surrounding the ERGS and OCPP sites. See Figures 11-14 to 11-16. The existing power plant stacks are visible as a remote feature on the horizon from the northern boundary of WEPCO-owned land (Elm Road and Barton Road), and the southern boundary (Seven Mile Road). Refer to Figures 11-17 to 11-18. To the west, along STH 32, there are some areas where the stacks are not visible due to the rolling topography. From the lake and lakeshore, the whole, existing power plant is visible.

Figure 11-10 Agricultural land and small woodlot

Figure 11-11 Wet meadow/shrub carr complex

Figure 11-12 Caledonia Green Space Trail

Figure 11-13 Nearby residential neighborhood

Figure 11-14 Transmission lines on STH 32 at the entry to the city of Oak Creek

Figure 11-15 Transmission lines adjacent to the bike trail and the railroad corridor

Figure 11-16 New residential area near existing transmission lines

Figure 11-17 View of existing OCPP exhaust stacks from Elm Road

Figure 11-18 View of existing OCPP exhaust stacks from the south on Seven Mile Road

Existing light environment

Figure Vol. 2-30 shows a satellite image of Wisconsin during the night provided by the Defense Meteorological Satellite Program (DMSP), and available on the web at www.darksky.org, an organization that addresses light pollution. A similar image is in the UW-Extension publication on Sensible Shoreland Lighting, also available on the web at www.uwsp.edu/cnr/uwexlakes/publications/lighting.pdf. Both of these images show a continuous, broad band of light from the Chicago area through the Milwaukee area along the coast of Lake Michigan.

Expected visual impacts

Size of the proposed facilities

Table 11-27 shows the dimensions of the proposed plant facilities for the two SCPC units. From a visual perspective, height is the most important factor. Eight of the new buildings or plant components would be slightly over 100 feet tall; one would be 150 feet tall; one about 200 feet tall; and two almost 300 feet tall. The tallest features are the exhaust stacks which would be about 675 feet tall on the North Site. On the South Site, the stacks for the SCPC need to be shorter, at a final height of about 470 feet, to avoid interference with navigation related to the John H. Batten Airport in Racine County. Refer to the section on Site Lighting and the FAA review discussed below.

Table 11-28 shows the dimensions of the proposed plant facilities for the IGCC unit. There would be two structures about 100 feet tall; five structures about 150 feet tall; and one structure 275 feet tall. The tallest of the IGCC facilities is about the height of the main SCPC buildings.

The tallest structures that occupy a substantial space (as opposed to a tower or chimney) are the two 270-foot high boiler buildings for the SCPC units and the 180-foot coal silo for the proposed IGCC unit. The facility having the greatest visual impact would likely be the flare on the IGCC unit, because of its size and the absence of any other object like it in the site area. The flare is discussed in more detail below.

Table 11-27 Approximate dimensions for the proposed SCPC facilities

Building	Area (feet)	Height (feet)
Turbine generator building for units 1 & 2	134 x 540	105
Boiler building for unit #1	200 x 270	270
Boiler building for unit #2	200 x 270	270
Control building	160 x 100	72
Circulating water intake structure/ pump house	110 x 110	93
Make-up water treatment building	100 x120	24
Wastewater treatment building	35 x 100	24
Gypsum dewatering building	70 x 125	35
Fire pump house	30 x 60	20
Coal handling system: transfer tower TT-1	60 x 64	110
Transfer tower TT-2	60 x 76	80
Transfer tower TT-3	30 x 34	80
Transfer tower TT-4	40 x 60	210
Transfer tower TT-5	30 x 30	35
Transfer tower TT-6	50 x 50	40
Coal yard maintenance building	100 x 150	24
Rotary car dumper house	55 x 70	60
Coal yard crusher house	70 x 100	150
Two baghouse control buildings	32 x 50	24
Absorber pump & electrical building	110 x 110	50
Service building	100 x 150	60
Warehouse	90 x 90	40
Exhaust stack for unit #1		675 (470)*
Exhaust stack for unit #2		675 (470)*
Two fly ash vacuum blower buildings	100 x 130	20
Baghouse for unit #1	150 x 160	120
Baghouse for unit #2	150 x 160	120
Absorber for unit #1	60 diameter	110
Absorber for unit #2	60 diameter	110
Bottom ash bin for unit #1	35 diameter	51
Bottom ash bin for unit #2	35 diameter	51

Building	Area (feet)	Height (feet)
Fly ash silo for unit #1	42 diameter	107
Fly ash silo for unit #2	42 diameter	107
Limestone preparation building	75 x 100	30
Two limestone slurry tanks	50 diameter	30
Fuel oil storage tank (500,000 gallons) / pumphouse	50 diameter + dike	36?
Gypsum storage building	50 x 120	30
FGD wastewater building	50 x 120	30
Urea silo	27 diameter	52
Urea blower building	30 x 40	
Condensate storage tank (250,000 gallons)	40 diameter	29
Demineralized water storage tank (125,000 gallons)	32 diameter	23
Waste neutralization tank (95,000 gallons)	30 diameter	34
Fire protection tank (300,000 gallons)	42 diameter	31
Service water tank (350,000 gallons)	45 diameter	32

* (470) indicates the final height of the SCPC exhaust stacks on the South Site options.

Table 11-28 Approximate dimensions for the proposed IGCC facility

Building	Area (feet)	Height (feet)
Air separation unit	500 x 650	General structure is 20 feet Two columns of 180 feet each Two columns of 90 feet each
Combined cycle power plant	300 x 400	110
Gasification facility	550 x 550	General structure is 30 feet Open frame structures at 120 feet
Acid gas recovery unit	275 x 300	General structure is 30 feet Two vents at 75 feet each
Sulfur recovery unit	275 x 275	30
Water treatment building	60 x 120	30
Waste water treatment building	60 x 120	30
Coal slurry/preparation facility	120 x 160	General structure is 60 feet Coal silo would be 180 feet
Two HRSG exhaust stacks		275
Flare		150
Coal silo		180

IGCC flare

The flare would burn waste gases from the coal gasification process. It would operate during plant start-up, which takes about two days, and it would operate during certain types of equipment malfunction. The flare would not be in use during normal plant operation. Refer to Chapter 6 for further information.

The applicants estimate that the flare would operate about 20 to 40 hours per year, but it would operate continuously for about two days when in use. According to Texaco, "The flare would not be visible during daylight hours. At night, the flame would be blue in color and similar to a hydrogen flame. With proper design, the flame would burn cleanly and with minimal noise."

The flame would burn from the top of a 150-foot structure. At its highest, the flame itself would be 80 feet tall, although this height would be reached shortly before the plant starts, and would only last for a few minutes. During these conditions, the top of the flame would be about 230 feet above ground level.

WE Power and WEPCO do not expect the flare to affect site lighting, since it is not in use during normal plant operation. The FAA would not require clearance or warning lights on the 150-foot structure. There would be a small natural gas pilot light for the flare. This pilot light would be kept burning whenever the plant is in service but WE Power and WEPCO do not expect it to be noticeable.

Figure 11-19 shows a flare at the Wabash IGCC plant, taken during a startup of the plant at night. The gas flow rate is not known.

Figure 11-19 Flare Operation at IGCC facility in Wabash, Indiana

Site lighting

Federal Aviation Administration (FAA) review

Because of the closeness of the proposed ERGS site to the General Mitchell International Airport in Milwaukee and the John H. Batten Airport in Racine County, the FAA reviewed the ERGS proposal to determine if any of the proposed structures would be considered navigational hazards and if lights would be required for the stacks or taller buildings. The FAA defines "tall" structures as those above 200 feet. For this project, there would be two buildings, one transfer tower and four exhaust stacks that are above 200 feet.

Table 11-29 Structures over 200 feet tall

Structure Type	Number of Structures	Proposed Height
Supercritical boiler buildings	2	270
Transfer tower for coal handling	1	210
Exhaust stacks for SCPC units	2	675
Exhaust stacks for IGCC facility	2	275

The FAA has reviewed the project, and determined that none of the buildings or structures on the North Site would be deemed a hazard to air navigation. However, the proposed 675-foot tall exhaust stacks for the SCPC units on the South Site (and the South Site-Exp option) constitute a presumed hazard to air navigation at their proposed height of 675 feet. The FAA would require that the proposed 675 feet stacks for the SCPC units be lowered to 474 feet and 469 feet for units 1 and 2, respectively. WEPCO conducted additional air modeling analysis to determine if the lowered stack height would adversely effect air emissions and the applicants' ability to secure an air construction permit. However, the modeling provided to the DNR does not include use of the most updated BACT parameters, rendering it incomplete for making such a determination.

WE Power proposed medium intensity lighting for the buildings and stacks over 200 feet in height. The FAA required that all marking/lighting meet the standards in FAA Advisory Circular 70/7460-1 K Chg 1. Accordingly, WE Power would light all four top corners of the boiler buildings. For the IGCC stacks, WE Power would likely use four 24-hour white medium intensity strobe lights spaced 90^{o} apart and placed within the top 20 feet of the stack.

The SCPC stacks may require a dual system with white medium-intensity strobe lights operating during daylight hours with red lights in use at night. Lights would be spaced 90^{o} apart within 20 feet of the top of the stacks and at about the mid-height elevation of the stacks.

Lighting during construction

During construction, WE Power would light parking and active work areas in accordance with OSHA Standard 1926 as well as the Wisconsin Administrative Code.

Both the city of Oak Creek and the town of Caledonia include lighting in the list of items that would be required for a zoning variance.

Building exterior and landscaping

Design details related to building exteriors and landscaping have not been completed and would remain flexible until WE Power and WEPCO consult with local officials. The only available information is general statements and architect's sketches. Figures Vol. 2-31 through Vol. 2-34 are conceptual sketches of views of the site from various locations around the site periphery. Refer to Appendix E for the design details contained in the city of Oak Creek's CUP conditions.

Fencing

WE Power plans to fence the entire site with a six-foot chain link fence. Where the fence is within view of the public, WE Power intends either to screen it with tree and shrub plantings, or use a decorative section of fencing.

The shooting range that would be moved if the South Site- Exp is selected, would also be fenced. The specifications for this fence are for a six-foot, chain-length fence with barbed wire on top, but it is not clear whether the fence would be inside or outside the berm that surrounds the rifle range.

Mitigation of visual impacts

Building locations

WE Power proposes to place the SCPC power plant facilities at the base of the bluff, thus significantly reducing the visual impact of the facilities. The entire plant would be visible only from the lake and from the air. The lake bluff would hide from landward view almost half the height of the facilities at the North Site, and almost one-third the height of the facilities at the South Sites.

Berms

WE Power would create berms at strategic places on WEPCO's property to screen the proposed facilities from view. Figure 11-20 shows how berms and woods screen the existing plant facilities from the Barton Oaks neighborhood located in the background near the LNG tank. Refer to Figures Vol. 2-1 through 2-3 for the location of proposed berms. WE Power has indicated that the berms would be positioned as proposed to provide the maximum visual barrier to nearby residences. The height of a screening berm is dictated by the footprint available for its base.

The proposed berms locations include:

- Behind Haas Park to the south of the Barton Oaks Subdivision
- At both ends of Haas Park
- Running north and south along the rail tracks, to the east of the Barton Oaks Subdivision
- Along and to the south of Oakwood Road
- Inside the rail loop

Additional existing landscape features also provide screening. These include the raised railroad track to the east of Barton Oaks and wooded areas on-site.

Figure 11-20 Example of woods and berms screening plant activities from nearby residences

Distance and buffer land

There is about one-half mile distance between the North and South Sites, and neighbors to the west. The North Site is also located over a quarter mile from most of its southern neighbors. This distance allows plantings, either on WEPCO's land, or on neighboring properties to be more effective for screening. (See Figure 11-19). The distance also reduces the apparent size of plant chimneys.

Building exterior and landscaping

Involving the surrounding community in selecting final design details for the appearance of the buildings and boundary landscaping is typical for new power plant construction. WE Power states that, "The overall approach to the re-vegetation of the site would be to create an aesthetically enhanced landscape while preserving woodlands, streams and other existing natural features if possible. Trees, shrubs, and grass areas will be planted."

The features viewed most frequently by the community are the gate houses. WE Power has indicated that it intends to construct attractive gate houses with landscaping at the Oakwood Road and Highway 32 entrances.

Various officials, including the Oak Creek City Administrator, visited power plants in Germany that use materials and design details to make them more attractive because they are located in urban and residential areas. It is expected that these desires and concerns would be taken into consideration in the final design.

Figure 11-21 Effectiveness of vegetation in screening plant views

Railroad Proposals and Impacts

Existing environment

Railroad lines

Canadian Pacific rail corridor, Amtrack, and MRRI

Three rail corridors (or rail lines) east of Interstate 94 connect Chicago to Milwaukee through Kenosha and Racine Counties. Canadian Pacific (CP) owns the westernmost rail line, which is CP's main route from Chicago to Minnesota and western Canada. This is also the rail line that Amtrak uses in eastern Wisconsin. Amtrak runs the Hiawatha train (between Chicago and Milwaukee), and the Empire Builder (Chicago to Milwaukee to Minnesota and west to the state of Washington). Amtrak will continue to develop its rail service along the CP rail corridor, and does not intend to switch to use of either of the other two rail corridors. The Midwest Regional Rail Initiative would also target improvements to this rail corridor, rather than the UP rail corridors. The CP rail line passing through Racine and Kenosha currently carries about 40 passenger and freight trains per day.

Union Pacific rail corridors (west and east), coal delivery, and commuter rail service

Union Pacific (UP) owns the two other rail corridors between Chicago and Milwaukee. A rail line that appears to be seldom used connects these two corridors in the city of Kenosha. The westernmost UP rail corridor is the UP's main freight line between Chicago, Milwaukee, and St. Paul. It serves WEPCO's Pleasant Prairie power plant. The easternmost UP rail corridor delivers freight to local customers, including

delivery of coal to the existing OCPP. Refer to Table 11-30. Potential commuter rail service between Chicago and Milwaukee would also use UP's eastern rail corridor.

Table 11-30 Current rail traffic on the UP line that delivers coal to the OCPP

	WEPCO's coal trains*	Other rail user #1* *	Other rail user #2* *
Number of trains per week	5 - 6	7 (one per day)	2
Number of cars per train	125	80 -100	20
Time of day	Any time	Between 1 a.m. and 4 a..m.	Between 10 a.m. and 2 p.m.

* Source: WEPCO
** Source: Union Pacific Railroad

Ownership of land and rail facililities

The rail corridor that serves the OCPP once contained two main tracks, but presently there is only one track. A second track (siding), for service to the OCPP site, begins just south of Five Mile Road. UP owns about a 100-foot wide right-of-way. Adjacent to the east side of the right-of-way are a gas pipeline and an overhead electric transmission line. In Racine County, there is an asphalt-paved bike path adjacent to the transmission line.

UP owns the railroad corridor, the tracks, and the train engines. WEPCO owns the rail track and other facilities on the Oak Creek site, and the rail cars that deliver coal. The UP would determine the route used by any rail traffic on its line.

Road crossings of the UP's easternmost rail corridor

Between the OCPP site and the Illinois state line, UP's easternmost rail corridor crosses about fifty roads in Racine County, and about thirty roads in Kenosha County. Most of these crossings are in the cities of Racine and Kenosha. At five of the Racine County road crossings and 12 of the Kenosha County road crossings the rail corridor is elevated above the road on a bridge. The road is elevated above the rail corridor at one Kenosha County crossing. The rest of the crossings are at grade level. In the town of Caledonia, the easternmost UP rail corridor crosses Seven Mile Road, Six Mile Road, Five Mile Road, STH 32, Four Mile Road, and Three Mile Road. All except Five Mile Road and STH 32 are at grade.

Existing coal delivery

Number of trains and timing of delivery

Coal delivery for the OCPP units 5-8 now account for about half of existing rail traffic on the UP Railroad through Caledonia and into Oak Creek (see Table 11-30). Table 11-31 shows estimated and actual coal train deliveries to the existing OCPP. The Site Manager for the OCPP keeps a log of train arrivals. In 2002, 233 trains delivered coal to OCPP, and in 2001, there were 258 train deliveries. For 2002, this averages about 4.5 trains a week. During June, the existing car dumper usually has a two-week outage. Excluding these two weeks, during which no trains deliver coal, the average number of existing coal trains arriving at the OCPP during 2002 is 4.7 trains per week. The similar averages for 2001 are 5.0 and 5.2 trains per week.

Table 11-31 Number of train deliveries to the existing OCPP*

Data source	Trains per year	Average per week	Average per week excluding 2 weeks in June w/ no rail traffic
2002 OCPP Site Log	233	4.5	4.7
2001 OCPP Site Log	258	5.0	5.2
WEPCO estimate	NA	5-6	NA

*The existing four units operate at about 80% capacity over time. The proposed units would operate at about 85% capacity. However, the existing units burn coal with a lower fuel content than the proposed units would burn and thus would require more coal per MWh than the proposed new units.

WEPCO states that it cannot predict the frequency or timing of coal deliveries. Three trains could arrive at one time and then none for several days. For a picture of the frequency and timing of current deliveries, Figure 11-21 shows the 2002 and 2001 coal deliveries by month, Figure 11-22 shows deliveries by day of week, and Figure 11-23 shows them by two-hour period.

Figure 11-21 2001 and 2002 coal train deliveries by month

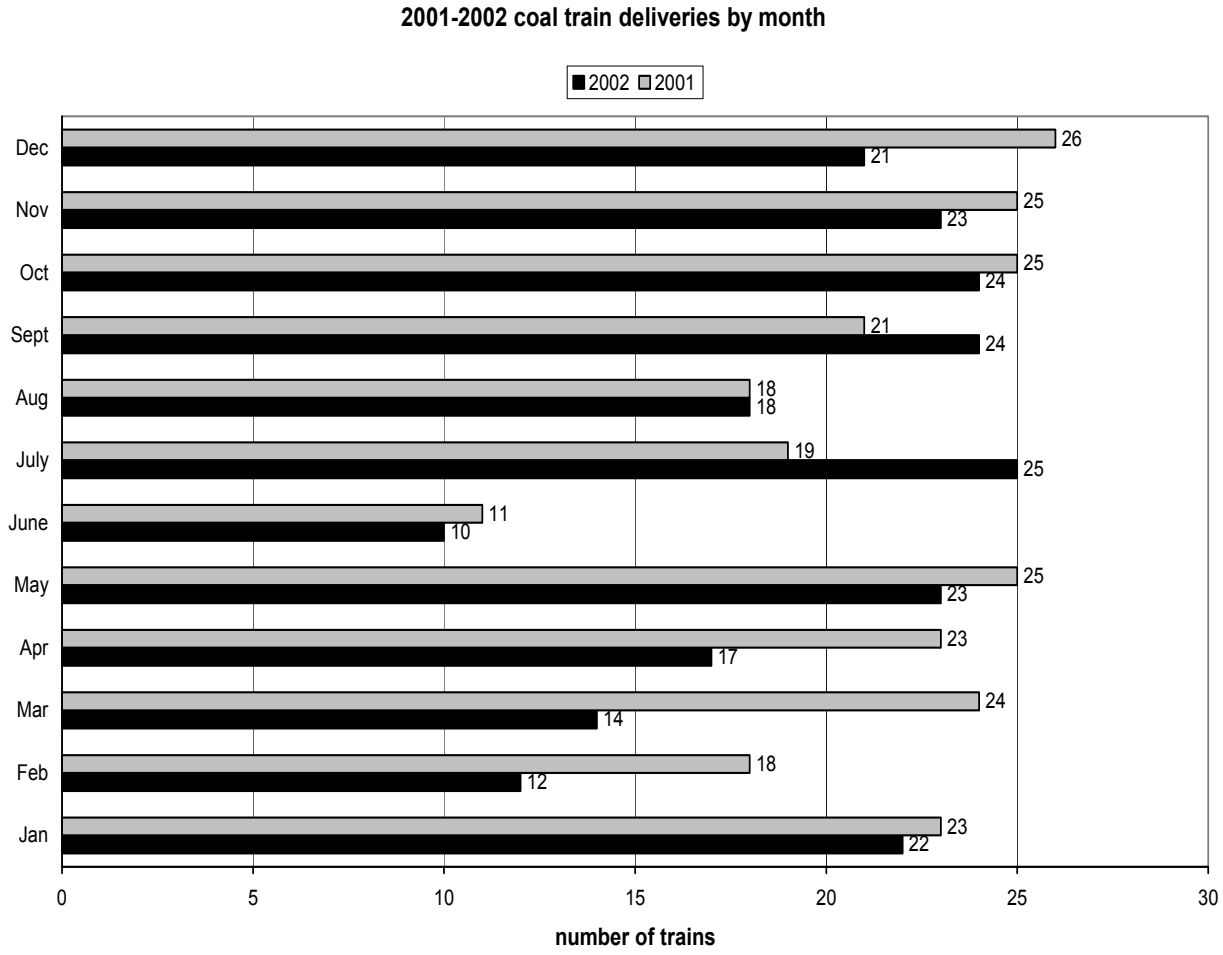


Figure 11-22 2001 and 2002 coal train delivers by day of week

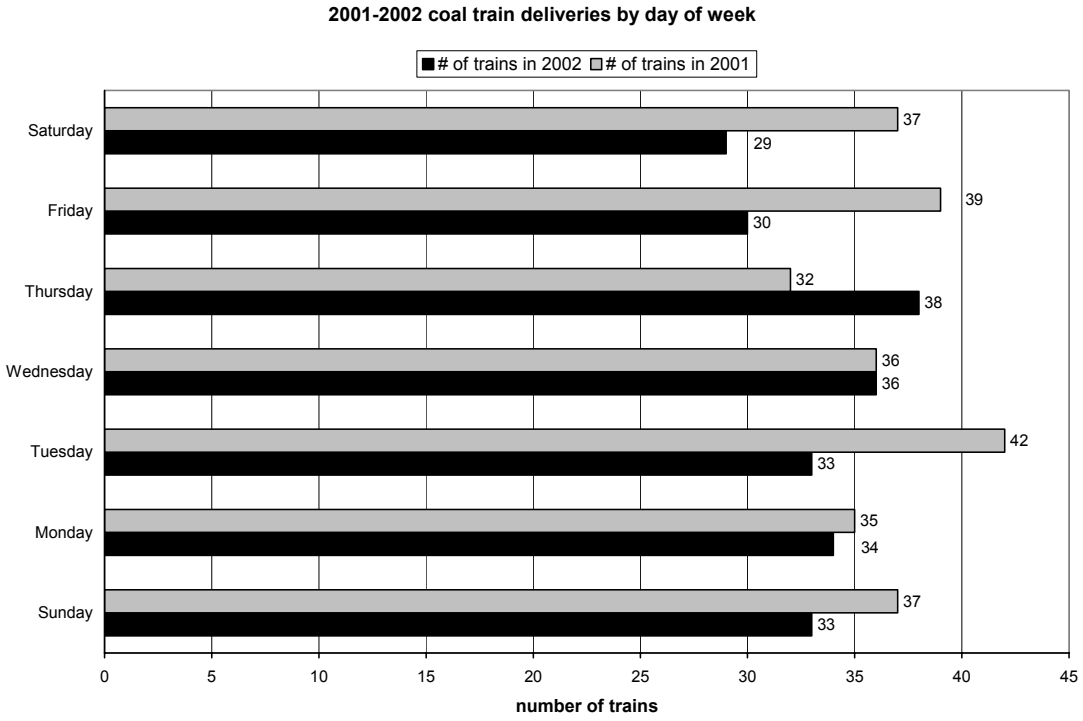
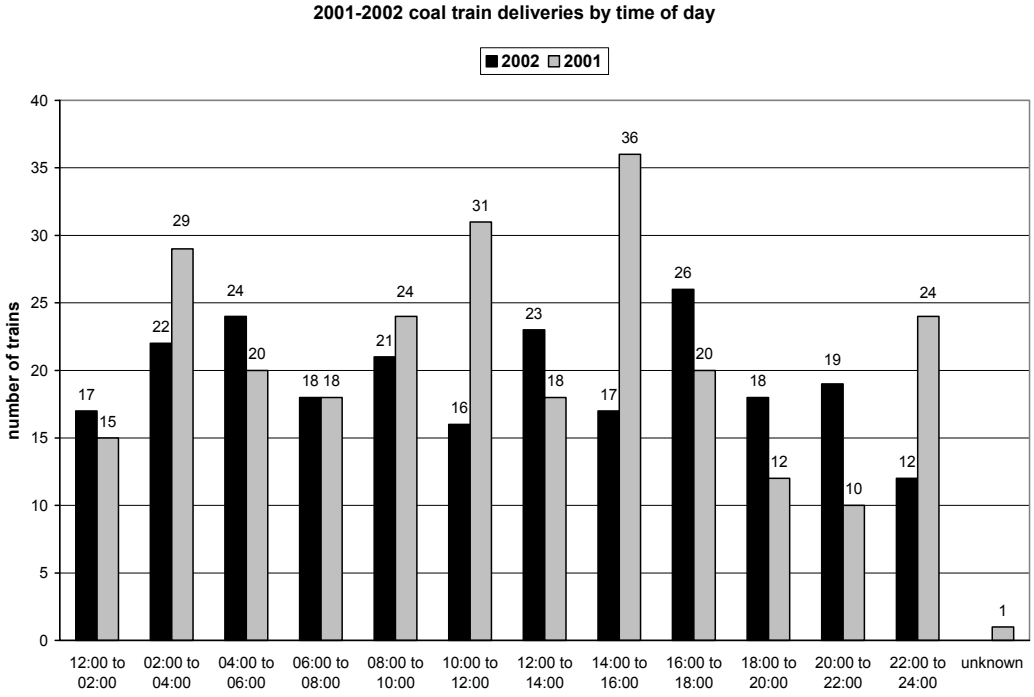


Figure 11-23 2001 and 2002 coal deliveries by two-hour period



Existing coal unloading procedures

Currently WEPCO breaks a 125-car train into three strings of about 42 cars per string. Strings/cars that are switched onto WEPCO's siding tracks located on-site are moved manually, which involves a great deal of stopping and starting of the train and results in significant noise. During the current coal unloading procedure, each individual car is manually lined up with the dumper, causing loud noises as the train strings stop and start. An average of about five cars per train require some kind of maintenance, which again involves moving the train backwards and forwards to de-couple those cars. This movement produces loud noises as cars bang together when the backward and forward movements begin. At present, it takes about 16 hours to unload a 125-car coal train.

Proposed coal delivery for ERGS

Delivery of coal by ship

In WEPCO's CPCN application, the possibility of transporting coal by water rather than rail was presented as an alternative. In the draft EIS improved docking facilities, as well as improved rail delivery facilities were shown on the same maps, leading many people to believe that both improvements would occur. However, the applicants have stated that it would not be economical to construct both types of facilities. At the present time, WEPCO would prefer to build only the railroad improvements and forego construction of the harbor facilities. However, it is still seeking DNR permits for both facilities.

In addition, whether water delivery is the primary or secondary mode of coal delivery to the new units, on-site coal storage would need to expanded and increased train deliveries would still be necessary due to freezing of the lake and the uncertainties of coal delivery by water. Thus, the increased use of water delivery would not decrease the overall impacts of land delivery, but would also entail significant impacts to the lake and increased costs.

Increases in rail traffic

Fuel source effect on train delivery estimates

When the applicants filed their CPCN application with the PSC, they had not yet decided on a western or eastern coal source. Western and eastern coals have significantly different properties. One difference is that eastern coal has higher energy (fuel) content. The amount of eastern coal that is required to fuel the proposed plant would be about 30 percent less than the amount of western coal. Because WEPCO did not know the coal source, it's estimates of increased rail traffic used in the CPCN application were for the worst-case condition, i.e. a western coal source. Since then, WEPCO has decided on the use of eastern coal (Pittsburgh #8 bituminous coal) for the new units. Therefore, current estimates for increased rail traffic are lower than the estimates in the CPCN application. The existing OCPP units would continue to burn western coal. All train traffic delivering coal to the OCPP would travel through Chicago, regardless of coal source.

Estimates of number of trains needed for ERGS proposal

Tables 11-32, 11-33, and 11-34 estimate total coal train traffic, assuming one, two, or three ERGS units. The first table uses WE Power's analysis. The second table is an independent PSC staff analysis. The third table

uses the largest numbers for existing train traffic (WEPCO's) and the largest numbers for proposed train traffic (PSC staff's). These estimates are lower than those in WEPCO's CPCN application, because WEPCO is now proposing to use eastern, rather than western coal for the new units, reducing needed train capacity by about 30 percent. The first two tables assume 135-car trains. The third table shows estimates for both 130-car trains and 135-car trains. Existing trains bringing coal to the site have 125 cars. WEPCO is proposing rail facilities capable of handling 150-car trains. There is some debate in the rail industry as to the number of cars and the capacity per car that will become the new industry standard. Actual weekly train traffic would be highly variable since coal deliveries cannot be scheduled.

Table 11-32 WEPCO estimate of future coal train deliveries

	Existing train deliveries	Deliveries with 1 SCPC unit	Deliveries with 2 SCPC units	Deliveries with 2 SCPC units and 1 IGCC unit
Total number of trains – weekly estimate*	5 to 6	7	9	11
Source of coal**	western coal	eastern coal	eastern coal	eastern coal
Number of cars per train***	125	135	135	135

*This estimate is the yearly total divided by 52

**Eastern coal requires 30% fewer deliveries due to its higher energy content. The percentage of time the proposed units would operate is similar to that for the existing units

***Number of cars per train and/or the capacity of train cars may increase in the future. WEPCO's proposed design for the rail unloading facilities would accommodate a 150-car train.

Table 11-33 PSC staff estimate of future coal train deliveries

	Existing train deliveries*	Deliveries with 1 SCPC unit	Deliveries with 2 SCPC units	Deliveries with 2 SCPC units and 1 IGCC unit
Total number of trains – weekly estimate**	4.7	7.08	9.42	11.75
Source of coal	western coal	eastern coal	eastern coal	eastern coal
Number of cars per train***	125	135	135	135

* Existing deliveries based on years 1998, 1999, and 2000

** This estimate is the yearly total estimate divided by 52

***Number of cars per train estimated to remain the same for the existing deliveries.

Table 11-34 Highest estimate for future coal train deliveries*

	Existing train deliveries	Existing deliveries with 1 SCPC unit		Existing deliveries with 2 SCPC units		Existing deliveries with 2 SCPC units and 1 IGCC unit	
Total number of trains – weekly estimate*	6.0	8.42	8.33	10.85	10.67	13.27	13.00
Number of cars per train**	125 cars per train	130 cars per train	135 cars per train	130 cars per train	135 cars per train	130 cars per train	135 cars per train

* This estimate is the yearly total estimate divided by 52

**Number of cars per train estimated to remain the same for the existing deliveries and varied for the proposed deliveries.

Effect of siting and number of units

The applicant's rail proposals do not differ depending on whether the North Site, South Site or South Site-Exp is used. Potential impacts would remain the same, regardless of site. However, the average number of train deliveries per week would increase by about two for each additional unit that is built and operated and the trains are expected to be about 10 cars longer than those used for current coal deliveries.

Proposed changes to the railroad corridor

To accommodate WEPCO's proposed changes in coal delivery, the UP would modify its easternmost rail corridor from the plant site to about 0.66 mile south of Five Mile Road (about 3,500 feet south as measured along the rail right-of-way). The UP would add no new main tracks, however, the location of the main track within the rail corridor would change for some or all of the area under reconstruction. The UP's new tracks, whether for main or siding purposes, would probably be built to higher standards (e.g. stronger ties, wider rails) than the track being replaced.

Currently, there is one siding track for WEPCO that begins about 800 feet north of Five Mile Road. Under the proposed reconstruction, train switching to WEPCO's sidings would begin about 1,500 feet south of Five Mile Road. The number of sidings servicing WEPCO's property would increase to two tracks from this point to a point about 1,700 feet south of Seven Mile Road. South of Seven Mile Road the sidings would increase to four tracks. Figures 11- 24 to 11-27 show proposed changes to the rail corridor immediately south of the OCPP site, and around Seven Mile Road, Six Mile Road, and Five Mile Road.

WEPCO's descriptions of the proposed changes in the rail corridor include the following information:

- All work would be done on existing UP railroad right-of-way and WEC right-of- way or property.
- There are currently two rail tracks on the UP right-of-way, a siding and a mainline. WEPCO's proposal would reverse the mainline and siding tracks so that the mainline would be the westernmost track and the siding would be the easternmost track.
- WEPCO's proposal adds two inbound tracks, which branch off the passing track south of Seven Mile Road. WEPCO's proposal adds two outbound tracks.
- Trains entering the site would stop at the entrance to the new indexer/car dumper on the inbound track.
- After the train has cleared the car dumper, it would be inspected and refueled.
- Refueling would be done by fuel truck at the head-end engine and at the tail-end engine. Refueling stations are locations where UP would re-fuel their engines by tanker truck. Drip pans would be fitted between the tracks in the refueling areas.
- While the train was in this outbound position, rail cars would be inspected. Cars requiring repair would be counted and marked.
- The proposed rail arrangement includes a bad order yard, where cars requiring repair, and repaired cars, would be stored. As the train left the site, repaired cars would be added to the train, and cars requiring repair would be removed from the train.
- After all the bad order cars were changed out, the brakes would be air tested as the train left on the mainline.

- Trains to the ERGS site would be a nominal 135 cars and 3 engines (7,500 feet in length). The maximum train length that the rail design would accommodate is 144 cars and 4 engines (8,100 feet in length).

Figure 11-24 Proposed rail facilities near the southern boundary of WEPCO's property

Figure 11-25 Proposed rail facilities near the Seven Mile Road crossing

Figure 11-26 Proposed rail facilities near the Six Mile Road crossing

Figure 11-27 Proposed rail facilities near the Five Mile Road crossing

Potential air pollution from coal trains

Fugitive dust

RTP Environmental Associates, a consulting firm for WE Power, researched EPA wind erosion data. The two potential sources for fugitive dust from coal trains are the open coal cars, and the disturbance of the rail bed by train movement. RTP's analysis, reprinted below concludes that any particles of coal that would blow off or bounce out of an open coal car would be gone before the cars reached Wisconsin, and that the speed of coal trains in Wisconsin would not disturb materials on the rail bed. When the coal is unloaded at the

power plant site, it would be in an enclosed building incorporating dust suppression techniques. Empty rail cars would return over the same route that they came in on. Depending on weather conditions, the empty cars would give off coal dust. Damp or inclement weather would reduce dust.

Analysis of Potential for Fugitive Dust from Coal Train Deliveries by RTP Environmental Associates, November 2002

EPA has developed equations to estimate the dust generated from wind erosion of exposed areas, and these can be applied to estimate emissions from the train movement and open coal cars (wind erosion caused by air currents from the moving train are similar to wind emissions at stationary sources caused by wind). Wind erosion dust sources are typically characterized by non-homogeneous surfaces impregnated with "non-erodible elements" (particles larger than approximately one centimeter in diameter. "Field testing of exposed materials using a portable wind tunnel has shown that dust can be generated from undisturbed coal piles and road beds when wind speeds exceed approximately 50 miles per hour at seven meters above the surface and the particulate emission rates tend to decay rapidly (half-life of a few minutes) during an erosion event."

In other words, these undisturbed material surfaces have a finite availability of erodible dust, and once the available dust is emitted there is no additional material to generate additional dust (unless the material is disturbed, for example by bulldozers or other grinding processes that could generate fresh erodible material). Since the coal trains travel at speeds of less than 30 mph, and because the coal in the cars, and the railroad bed, are not "disturbed," the EPA wind erosion equations indicate that there will be no significant fugitive dust emissions from the coal train operations.

Diesel emissions from rail engines

Rail engines run on diesel and no entity regulates diesel emissions from rail engines. Dispersion and distance generally keep diesel fumes from being a problem for adjoining property owners around the OCPP. However, trains that stop and idle for hours or days can cause build-ups of diesel fumes. Residents of the house east of the railroad tracks, and north of Seven Mile Road, have reported experiencing problems with diesel fumes from engines idling for hours or days while parked adjacent to their property.

Train engines must idle in the winter to keep warm if they are not in a building or connected to a power source. If rail engines are not kept warm, and are turned off, they are difficult to restart. In addition, there might be other damage. One solution may be to house the engines, that might otherwise idle overnight or over a weekend, in one of the heated sheds used for coal unloading. Diesel fumes from rail engines idling do not occur in the summer months, because the engines can be turned off.

The UP is gradually replacing older locomotives with newer, more efficient ones that produce lower emissions, among other improvements. The UP ordered 1,000 new engines in 1999; the last of which will be delivered in 2003. The newer engines would decrease both emission and noise impacts.

Noise effects of proposed changes in coal unloading facilities

The noise section discusses potential noise from all sources, including trains. WE Power proposes to modify the on-site rail facilities in a number of ways that would reduce noise. Among the major changes it is proposing are a new indexer that would automatically position train cars in the precise position for coal

unloading and an expansion of the on-site tracks that would accommodate an entire train. See Table 11-35 below for a comparison of existing facilities and those proposed as part of the ERGS project.

Table 11-35 Proposed changes that would reduce noise during coal unloading

Subject	Now	Planned change
Train length on-site	WEPCO breaks a 125-car train into 3 strings of about 42 cars per string – causing coupling and uncoupling noise	Expand the track to accommodate entire train (up to 150 cars) on property, thus eliminating noise
Switches to WEPCO siding	Manual; train stops and restarts causing car noise	Automatic; no stopping eliminates noise
Location of repair-in-place track (inspection pulls out an average of 5 cars per 120 car train for maintenance)	Requires uncoupling - backing up and moving forward which causes loud noise	Reduce on-site repairs; change location of repair-in-place (RIP) track to reduce movement and noise
Dumping coal from cars	Manual; line every car up with the dumper individually, causing noise due to trains starting and stopping. Takes about 16 hours to unload one train	Automatic indexer; only need to line up the first car; eliminates back and forward noise. Takes about 5 hours to unload one train.

In addition, the replacement of track in the rail corridor near the plant would reduce the noise associated with train movements, as the tracks would probably be built to carry heavier loads than the current tracks.

Potential safety issues associated with increased rail traffic

Table 11-36 summarizes 2001 accident and incident data for all UP trains. The length of a round trip from the Illinois border to the Oak Creek site is about 50 miles. Train speeds in Wisconsin are slower than in other states. The UP currently has 28 crossings between the Illinois border and the Oak Creek site. If two rail crossings are eliminated in Caledonia as proposed, this would lower the potential for accidents between rails and vehicles in Wisconsin.

Table 11-36 Accident statistics for the Union Pacific Railroad Company* (January - December 2001)

	# Accidents	Miles	# Accidents per million miles	Fatalities	Injuries
Highway/ rail accidents	629	172,712,098	3.64	72	227
Trespassing incidents	259	172,712,098	1.50	132	127

* Federal Railroad Administration Office of Safety Analysis (safetydata.fra.dor.gov/officeofsafety)

Coordination with potential commuter rail service

Existing commuter service runs from Chicago to Kenosha. There is wide support for expanding this service. Studies are progressing for extending service from Kenosha to Milwaukee. Currently, the alternative analysis phase of project development is ending. Followeing local review and approval, the next phase addresses preliminary engineering. During this stage, a draft and final EIS will be prepared.
The proposed increase in train deliveries would not conflict with future commuter trains. In the past, commuter trains and freight trains shared this rail corridor. Currently, there is only one track between Chicago and Milwaukee. There used to be two main tracks in the rail corridor. If commuter rail service

were implemented, there would be a need to reconstruct or reinstall passing sidings or a second main track to allow commuter trains to pass one another and to coordinate with freight trains. The need to engineer for coordination with an increased number of freight trains may increase costs (for example, requiring more communication facilities), but should not interfere with the establishment of commuter service. Other successful commuter services share rail lines with higher amounts of freight traffic. Coal trains are generally slower than commuter trains, and would be fewer in number.

Rail transportation planners envision from 8 to 15 diesel-powered commuter trains traveling in each direction during weekdays (concentrated around rush hour). The rail line would need track and signal improvements to enable commuter trains to operate at acceptable speeds, to allow for passes between commuter trains, and to accommodate the joint operation of freight train and commuter train traffic. At a minimum, several long passing sidings or segments of second track would need to be reinstalled. At a maximum, almost the entire route would be restored to a double track line. Train stations close to the OCPP/ERGS site would be in the town of Caledonia at or near Four Mile Road, and north in the city of Oak Creek.

Trains blocking crossroads due to proposed changes in the rail corridor and train length

Times and causes for blocking neighboring roads

Table 11-37 shows the expected range of times and the reasons for blockage of Seven Mile, and Six Mile Roads. The rail corridor is on a bridge over Five Mile Road (CTH G) and further south WEPCO maintains that all road crossings would occur at-speed. The first switch to a rail siding could occur about 0.25 mile south of Five Mile Road. Train speeds in Wisconsin are normally about 30 mph, but trains entering and leaving the OCPP site would slow or stop for a number of reasons.
Surprisingly, trains could block Six Mile Road for a longer time than Seven Mile Road, due to the proposed increase in siding track length. This would allow rail engineers to test their brakes before joining the main rail line as trains leave the OCPP/ERGS site. Assuming that bad order cars (cars removed for repair) are located near the end of a train, the worst-case scenario at the Six Mile Road crossing would result in a longer blockage than the worst-case scenario at Seven Mile Road. In reality, the time that most trains would block Six Mile Road is probably equal to or less than the time that most trains would block Seven Mile Road. The discussion following this table explains the causes for these blockage times.

Table 11-37 Time that a train could block Seven and Six Mile Roads

Trains entering site	Trains exiting site		Total time
Seven Mile Road	**no bad order cars**	**5 bad order cars**	
30 min	15 min	165 minutes (2 hrs 45 min)	45-195 minutes (45 min - 3 hrs 15 min)
Six Mile Road			
25 min	75 min (1 hr 15 min)	225 min (3 hrs 45 min)	100-250 min (1 hr 40 min-4 hrs 10 min)

Seven Mile Road

Trains coming into the Oak Creek site would block Seven Mile Road for approximately 30 minutes per train due to:

- road crossing time
- switching time (switching from the UP track to WEPCO's siding)
- dumping time for the first three rail cars (due to the length of the train, the tail of the train would still be blocking Seven Mile Road until the first three cars are unloaded)

Trains leaving the site would block Seven Mile Road for anywhere from 15 minutes to a maximum of 165 minutes per train. Crossing the road takes approximately 15 minutes. WEPCO inspects trains leaving the site for any needed repairs. Cars needing repair (bad order cars) are removed from the train and backed onto a special siding (RIP tracks) for later repair. Bad order cars average five per train. At 30 minutes for each bad order car, Seven Mile Road could be blocked for an additional 2.5 hours or 150 minutes. Blockage of Seven Mile Road by outgoing coal trains would be caused by:

- road crossing time (15 minutes)
- removal of bad order cars (0 to 150 minutes)

Six Mile Road

Trains coming into the Oak Creek site would block Six Mile Road for about 25 minutes per train due to:

- road crossing time
- switching time

Trains leaving the Oak Creek Site would block Six Mile Road for anywhere from 75 minutes to a maximum of 240 minutes. Crossing the road takes approximately 15 minutes per train. Engineers must test the train brakes before beginning operation on the main line. This usually requires an additional 60 minute per train. Removing bad order cars would take from 0 to 150 minutes per train. Blockage of Six Mile Road by outgoing coal trains would be caused by:

- road crossing time (15 minutes)
- air testing the brakes (60 minutes)
- removal of bad order cars (0 to 150 minutes)

Four Mile Road

WEPCO states that trains would delay traffic on Four Mile Road only for the time it takes the train to cross the road, approximately 3.5 to 4.5 minutes per train. Trains would cross this road at a higher speed than at the Seven Mile and Six Mile crossings, where engines have slowed down considerably to enter or leave the on-site rail unloading facilities.

In the past, some coal trains have blocked 4-Mile Road for a considerable time. WEPCO states that this occurred because these trains were pulling off the main track to stop on the siding, while waiting for another train to leave the OCPP site. As proposed, the new rail facility would have room for four trains on WEPCO's property. The new switch to WEPCO's siding is designed for 30 mph. Trains approaching the power plant site begin to slow down about two miles south of the plant, and this would not change under the current proposal.

To confirm the time that trains take to cross Four Mile Road, WE Power hired a consultant, Innovative Systems, to monitor train and vehicle traffic at Four Mile Road and the UP Railroad. The study period was between July 19 and August 12, 2002. Innovative Systems installed a video camera and recording equipment on a utility pole at the Northwest corner of the crossing. The camera had an infrared light source to provide day and night recording. The camera view included the crossing gates and roadway on both sides of the track. Innovative Systems provided WE Power with ten tapes and a summary. The summary included the following:

- 30 coal trains passed Four Mile Road traveling to and from the Oak Creek site
- The number of vehicles stopped at the crossing (for coal trains) averaged 24, with a maximum of over 50
- Coal train crossing times averaged 3 minutes 48 seconds
- The maximum coal train crossing time was 8 minutes 50 seconds
- The minimum coal train crossing time was 2 minutes 17 seconds
- There were 61 other (non-coal) trains or gate closings

Scheduling of rail deliveries

The time of day during which coal trains would block specific roads is difficult to predict because the trains are not scheduled. Figures 11-28 and 11-29 show the actual amount of time that Six Mile Road and Seven Mile Road would be blocked for one, two, three, or more train deliveries per day, assuming no train deliveries overlap.

Figure 11-28 Total time Seven Mile Road would be blocked by coal trains on a daily basis (depending on the number of trains per day)

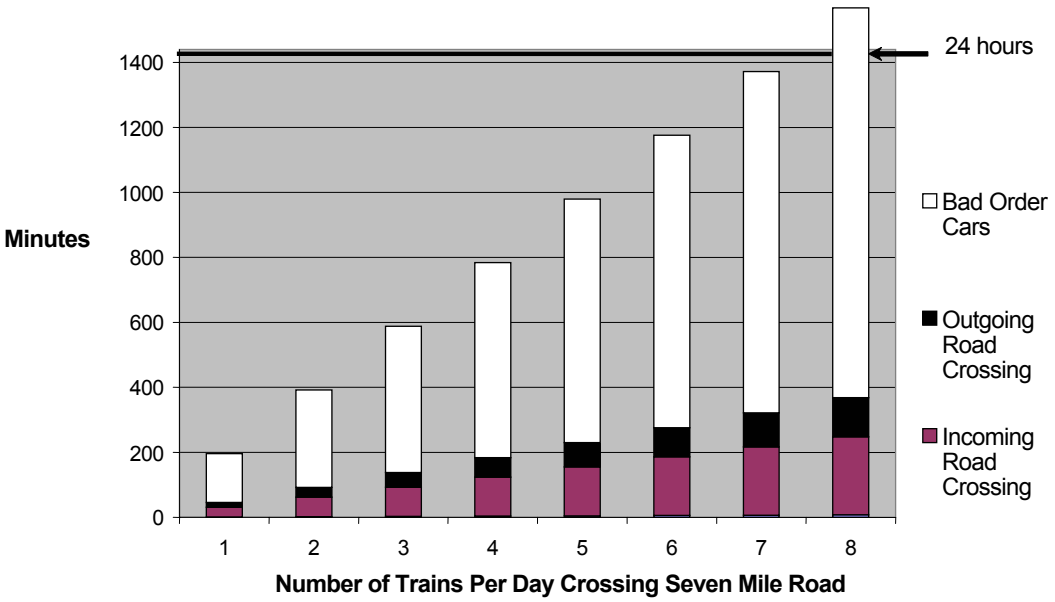
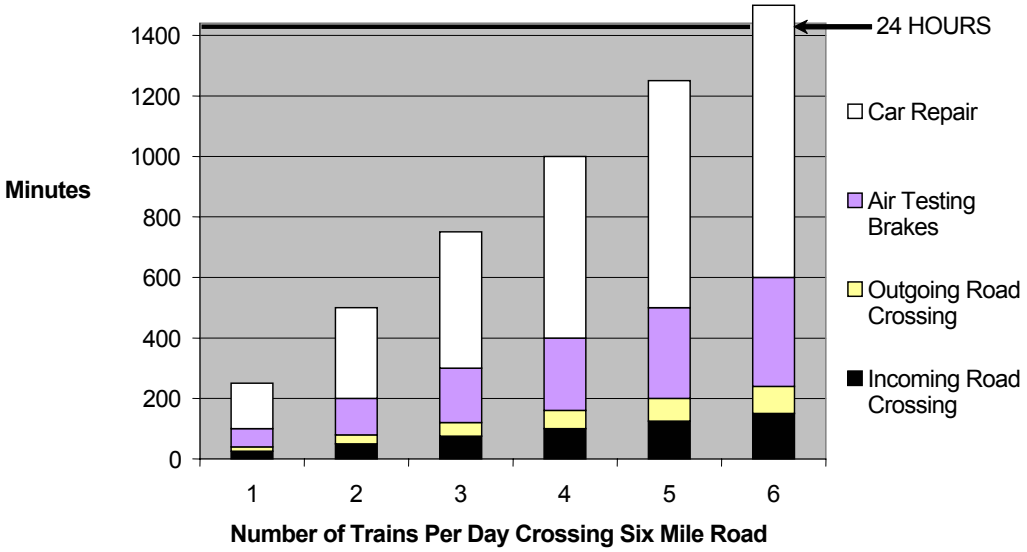


Figure 11-29 Total time Six Mile Road would be blocked by coal trains on a daily basis (depending on the number of trains per day)



Applicable federal laws

The U.S. Department of Transportation, Federal Railroad Administration addresses blocked crossings on its FAQ (frequently asked questions) internet site. The following paragraphs contain the information from that site verbatim.

> "The Federal Railroad Administration (FRA) takes the problem of blocked crossings very seriously, both because of their adverse safety effects and because of their adverse effects on the livability of our communities. While the federal government has not exercised regulatory authority in this matter, FRA rail safety regulations do address standing trains that unnecessarily activate grade-crossing warning systems. These regulations under Title 49 CFR, Section 234.209, prohibit standing trains, locomotives, or other rail equipment from activating the warning systems at grade crossings unless the operations are a part of normal train or switching movements. Each state has the authority to adopt its own requirements or leave such laws to the discretion of local governments.
>
> For guidance purposes, the 1987 Uniform Vehicle Code (UVC) 'a model set of motor vehicle laws' recommends that train operations should not block a highway-rail intersection for more than five minutes unless:
>
> - It is necessary to comply with signals affecting the safety of the movement of trains
> - It is necessary to avoid striking any object or person on the track
> - The train is disabled
> - There is no vehicular traffic waiting to use the crossing; or
> - It is necessary to comply with a governmental safety regulation

> The UVC is not binding, however. Each state has the prerogative of adopting its own version or leaving such laws to the discretion of local governments. The federal government has no authority in state matters, please contact the state attorney general's office for local or state laws that might be applicable to your situation, or for highway-rail grade crossing improvements, please contact the local and state highway authorities to determine if they might consider improvements at crossings that could resolve any such problems. Information on possible improvements, priorities, schedules, and the administration of funds is available through your state's Department of Transportation."

This site then suggests contacting the FRA Regional Manager for Highway-Rail Crossing and Trespass Prevention Programs for additional information and assistance.

Applicable state laws

Wis. Stat. 192.292 addresses the subject of trains obstructing highways. This statute is old, based on the assumption that in the countryside trains were just passing through, whereas in municipalities they were slowing down and stopping (for passengers and freight). This statute has seldom been used. Rail companies consider the $25 fine part of the cost of doing business.

The statute reads as follows: "It shall be unlawful to stop any railroad train, locomotive or car upon or across any highway or street crossing, outside of cities, or leave the same standing upon such crossing longer than 10 minutes, except in cases of accident; and any conductor, engineer, brakeman, or other person in charge thereof or responsible therefore who shall violate this section shall be liable to a fine of not more than $25 or to imprisonment of not more than 15 days."

The Office of the Commissioner of Railroads is charged with approving any physical change at railroad crossings of roads. The primary concern of this office is public safety.

Applicable Municipal laws

The Wisconsin statutes also allow municipalities to set their own standards for how long a train can block a track. Most such ordinances prescribe 10 minutes as the maximum interval; some use 15 minutes.

WEPCO's proposal to eliminate road crossing blockages

Train length, unloading operations, and increased numbers of trains would increase blockage time at the rail crossings of Seven Mile Road, and Six Mile Road in the town of Caledonia. WE Power hired engineering consultants Alfred Benesch & Company (Benesch) to investigate possible grade separations (putting the rail tracks over or under roads in the town of Caledonia).

Benesch held two workshops, inviting local officials, the Wisconsin Department of Transportation (DOT), the DNR, and the UP, to discuss the problem. Later, Benesch produced a report titled "Grade Separation Feasibility Studies." Copies of this report are in area libraries, as well as in the applicants' CPCN application. This report is conceptual in nature. It does not include the engineering studies needed to precisely locate, design, or estimate costs for possible changes at the two railroad/road crossings.

Proposal for Seven Mile Road

The Benesch report recommends closing Seven Mile Road east of the rail tracks by building cul-de-sacs on the east and west sides of the rail crossing. Benesch bases this recommendation on low traffic volume on Seven Mile Road east of the rail crossing (estimated at 200 vehicles per day), low population density east of the rail crossing, and the availability of Six Mile Road as an alternate route.

The traffic estimate for Seven Mile Road was based on data available on nearby roads and the estimates of local officials. Since then, the Town of Caledonia has used TimeMark Delta III traffic counting equipment to record an average daily traffic volume of 320 vehicles between October 22 and November 19, 2002. However, this would not change the Benesch recommendation, which was based on a safety-related "exposure factor", as defined in the Facilities Development Manual (FDM). The DOT and the Office of the Commissioner of Railroads use the FDM as a guideline for determining appropriate warning or safety improvements at road/railroad crossings. The exposure factor is the product of the average daily traffic and the number of trains crossing the road per day. The FDM guidelines list an exposure factor of above 100,000 as a justification for grade separation.

Proposal for Six Mile Road

The Benesch report recommends building an underpass beneath the railroad tracks at Six Mile Road. Six Mile Road would be relocated to the north of its present location and it would cross under the tracks.

For further discussion of the Benesch report, see the section below entitled, Potential impacts of a new rail underpass on Six Mile Road.

Process for altering railroads and ownership of new bridge/ road facilities

Any change to an existing rail crossing requires the approval of the Office of the Commissioner of Railroads (OCR), a five-person state agency that enforces section 195.29 Wis. Stats. (Chapter RR 1 of the Wisconsin Administrative codes). The local municipality must first pass a resolution supporting the project. Then the OCR must be petitioned. The OCR issues a notice of hearing and holds a hearing in the local area.

While WE Power would provide funds for the construction of any proposed underpass, it would not become the owner. The UP Railroad would own the rail bridge and the town of Caledonia would own the roadway and embankments of the underpass. WE Power would also pay for other specific changes to town or county roads due to the proposed power project.

Should the PSC and the OCR approve WE Power's plans for such an overpass, the town of Caledonia would need to be an active participant in order to acquire land for the relocated road. DNR permits would be required to discharge storm water (NR216) and possibly to relocate an intermittent waterway.

Potential impacts of WEPCO's proposal to eliminate road blockage problems on Seven-Mile Road

Loss of an access road for emergency vehicles

The Caledonia Fire Department has three stations that are sited west of the UP railroad tracks:

- one near Five Mile Road/Douglas Road (6040 Douglas)
- one near Nicholson Road/Six Mile Road (6900 Nicholson) – Station 1
- one near Nicholson Road/Highway K (9433 Northwestern Avenue)

The Department uses mostly east-west roads for response. Closing Seven Mile Road would remove one of its response access roads.

Although not in the applicants' current proposal, there is a means to allow both passage of emergency vehicles and direct access to STH 32 for those residents with driveways just east of the railroad crossing. A private access road could be constructed which would involve an arched tunnel under the railroad. This tunnel would need to be twelve feet high to accommodate fire trucks and would require the approval of the state OCR.

Loss of an access road for residents

Four homes have an access drive immediately east of the rail tracks. Closing Seven Mile Road would require those residents to access STH 32 by driving east on Seven Mile Road (about one-third mile), south on Michna Road (about one mile), and west on Six Mile Road (almost one-half mile). This is about one and one-half mile longer than a direct route traveling west on Seven Mile. There is also a residence at the intersection of Seven Mile Road and Michna Road, for which access from STH 32 would increase by about three-quarters of a mile. A private access road, such as the one described above, could eliminate the problem of access for residents on Seven Mile Road residing east of the proposed road closure.

Potential impacts of a new rail underpass on Six Mile Road

The applicants hired Benesch, as engineering consultants, to investigate possible grade separations (putting the rail tracks over or under Caledonian roads). Benesch produced a report titled "Grade Separation Feasibility Studies." Benesch recommends an underpass, with the road set north of its existing alignment. The design would include a dedicated bike path bridge (Alternative 3 in the Benesch report). While there is no detailed design for such an underpass, the general concept is shown in Figure 11-30, which shows the northern re-alignment of Six Mile Road and the proposed cul-de-sac on an airphoto of the area. The summary in Benesch' report, states that:

> "An underpass would be more aesthetically pleasing for the community, and constructing on an offset alignment would minimize the number of relocations and decrease the cost for traffic and railroad staging throughout construction."

Benesch held two workshops to develop ideas for solving the problems of traffic blocking Six Mile and Seven Mile roads. Benesch invited local officials, the DOT, the DNR, and the UP, to discuss the problem. The Benesch report presents the results of the two workshops. At the first workshop, a WE Power representative explained the problems and workshop participants brainstormed 14 possible solutions (total) for the two road crossings. From the 14 alternatives, Benesch picked nine to develop further. At the second workshop, Benesch handed out information related to each proposal, and workshop participants discussed the alternatives and listed advantages and disadvantages of each. Table 11-39 shows the advantages and disadvantages listed by participants for the two alternatives that Benesch ultimately recommended. The

Benesch report states that the recommendations were based on comments from the two workshops, additional investigation into ground water, costs, constructability, and engineering judgment.

Figure 11-30 Proposed Six Mile Road Realignment

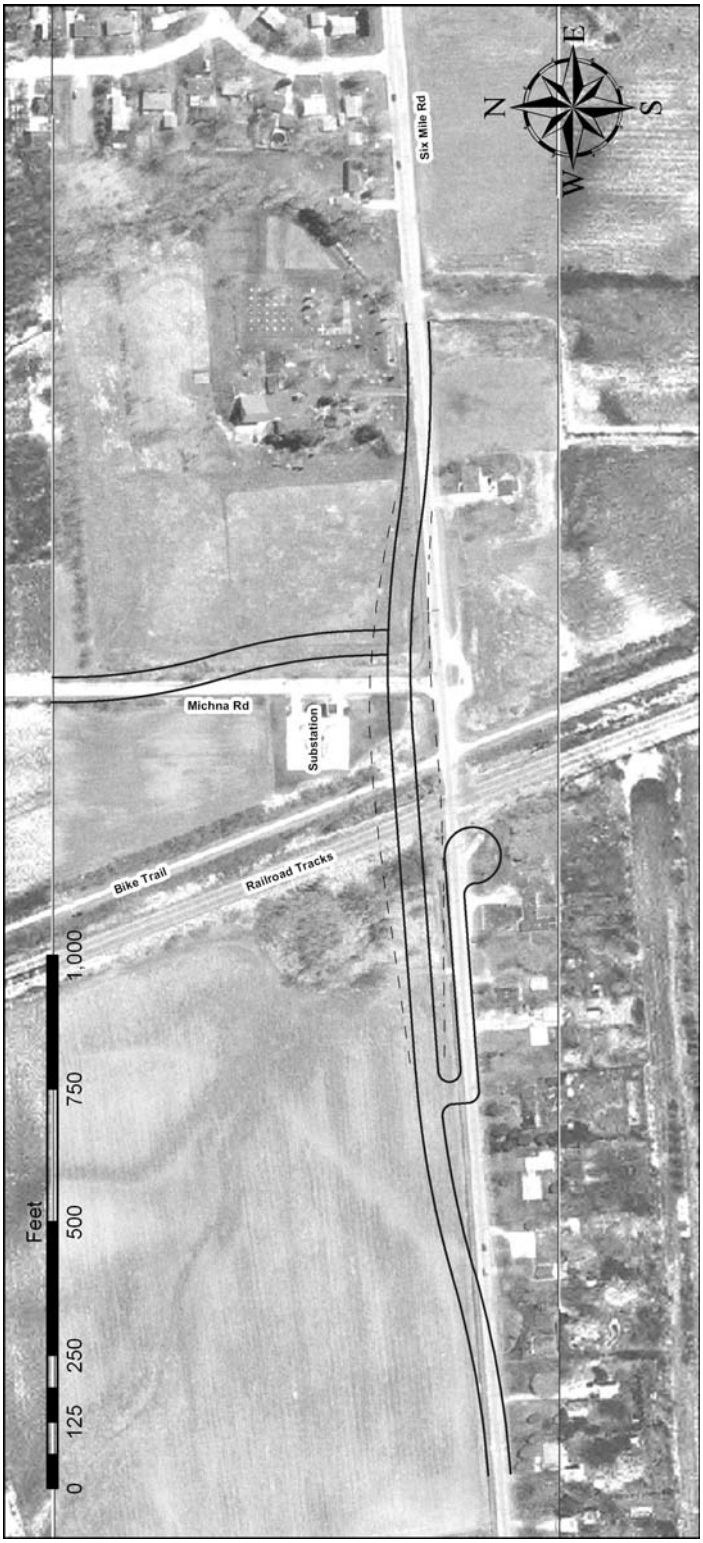


Table 11-38 Six Mile and Seven Mile Road alternatives selected by Benesch for further review*

Six Mile Road	
Alternative	**Name**
#1	At-grade crossing (no modification)
#2	Underpass on existing alignment
#3**	Underpass on offset alignment north**
#4	Overpass on existing alignment
#5	Overpass on offset alignment north
Seven Mile Road	
#1	At-grade crossing with advance signing
#2	Overpass on existing alignment
#3	Overpass on offset alignment north
#4**	Close 7-Mile Road**

* Benesch screened the 14 alternatives for the two crossings produced during the first workshop
** Recommended at end of study

DNR concerns with proposed railroad changes

DNR and DOT generally prefer projects to be on-alignment and within the existing right-of-way when possible, in order to avoid impact to new land. DNR concerns also focus on impact to wetlands, waterways and any endangered biota. DNR and DOT should remain involved in all discussions regarding preliminary and final design for any underpass project.

Drainage

Drainage flows from north to south under Six Mile Road through a culvert located west of the railroad tracks. It then crosses to the east side of the tracks through a culvert and flows north back under Six Mile Road. The footprint of the new underpass would interfere with the culvert on the west side of the railroad tracks. Engineers would most likely need to address the removal of this culvert by constructing a drainage ditch along the north side of any new underpass.

The closing of Seven Mile Road would not affect existing drainage. However, there is a stream located about 200 feet east of the crossing. If an overpass were built at Seven Mile Road, the stream would have to be enclosed for about 200 feet.

Wetlands

An overpass (rather than an underpass as proposed) at Six Mile Road, would have greater land disturbance and wetland impacts than other alternatives. It would also be more expensive than the Benesch recommendation. An overpass may be required if high groundwater exists at the crossing to an extent that pumping could not reasonably control it. However, this is not expected since soil boring data from a water main extension in the vicinity of Six Mile and Michna Road show no ground water present to a depth of approximately nine feet.

Table 11-39 Advantages and disadvantages of an underpass at Six Mile Road on an offset alignment to the north (with dedicated bike path bridge over Six Mile Road)

Advantages	Disadvantages
1. No relocations	1. Reverse curves
2. Provides property access	2. More land disturbance than Alt #2 (underpass on existing alignment with dedicated bike path bridge)
3. Easiest to construct	3. Shares these disadvantages with Alt #2: Pumping station – requires generator & maintenance More land disturbance than Alt. #1 (at-grade crossing) Bridge maintenance Possible high water table could make underpass drainage cost exceedingly high Possible unacceptable well drawdown for underpass drainage Additional cost for bike bridge
4. No sanitary sewer relocation	
5. Less land disturbance than overpass alternatives	
6. No impacts to transmission line	
7. Fewer impacts to Michna Road than overpass alternatives	
8. Can be widened to 4 lanes easier than overpass	
9. Shares these advantages with Alt #2 (underpass on existing alignment with dedicated bike path bridge): Less aesthetic impacts Positive consideration by OCR Easier E-W bike path access Eliminates rail vs. traffic/bike/pedestrian conflicts	

Electric Transmission Proposals and Impacts

Introduction

Figures Vol. 2-6, 2-7, and 2-8 and Tables 6-4 to 6-6 represent the best available information to date on the electric transmission needs for the ERGS proposed project. This representative list is the basis of the environmental impact analysis that follows. The discussion covers the impact associated with one short (four-mile) new transmission line, one long new transmission line, and many upgrades to existing lines.

Specific portions of the transmission improvements listed could change with further study by the ATC or the MISO, as the time for implementing the transmission changes nears. In addition, it is possible that new studies would show that the ERGS proposal does not create the need for a new, long transmission line in southern Wisconsin (although the line may still be needed for other reasons). However, without additional studies (which are not scheduled at this time), the following analysis assumes the need for a major, new transmission line in order to connect two or more of the proposed ERGS coal units to the electric system.

Process for electric transmission line/substation approval

The ATC has not yet applied to the PSC for approval of any of the listed transmission projects. The projects that require approval from the PSC, due to their size or cost, would receive further ATC study, PSC review, and public input.

Definitions of electric terms

Table 11-40 provides definitions for words that Tables 6-4 to 6-6 use to describe transmission line projects. The only word used to show the need for new right-of-way is "construct." All other words involve working with existing structures on existing rights-of-way. This could include simply replacing wires, to actually

replacing or raising the existing structures. Words used to describe proposed work at substations are more unclear. However, the ATC provided a description of proposed substation work, as shown in Table 11-41.

Table 11-40 Definition of term used to describe proposed electric transmission system improvements

Word used	Meaning	Level of environmental effects
Construct	Build a new set of transmission line structures on new or expanded[1] right-of-way.	Various, with a severity that depends on the location of the new right-of-way and the design of the structures.
Convert	Change the voltage of an existing transmission line by changing small equipment or electrical arrangements.	Usually little to no environmental effect.
Expand	Used for changes at an existing electric transmission substation[2]	Usually requires expansion of the existing fenced area; may require property expansion – environmental effects dependent on the surrounding environment.
Install	Used for changes at an existing electric transmission substation.[2]	Usually does not require any changes outside the substation fence; may require an expansion of the fenced area on utility property - environmental effects usually negligible.
Rebuild	Upgrade an existing transmission line in an existing right-of-way by replacing the old structures with new structures or raising the height of existing structures.	Environmental effects depend on the location of the existing right-of-way and the design of the structures – new structures are likely to be taller and may not be in exactly the same location as existing structures.
Reconductor	Replace existing wires on existing transmission structures with new wires capable of carrying more power. This may also require new insulators.	Effects would be caused by access to the existing– environmental effects would be dependent on the location of the poles.
String	Place new wires where there is an unused position ready for them.	Little to no environmental effect.

[1] Right-of-way expansion would occur if a new transmission line is placed next to an existing transmission line so that their rights-of-ways could overlap, reducing the amount of new right-of-way required.

[2] Refer to Table 11-41 in this section for information about substation changes proposed for this project.

Differences due to site selection or the number of units

Use of the North Site or the South Site would have no effect on electric transmission line requirements or impacts. The number of units may have an effect, but it's unclear without further study. There is some indication that constructing one SCPC unit would have a different effect on the electric transmission system than constructing more than one unit. However, there are many complicating factors, including the need for upgrading the existing transmission system just to serve customers in southeast Wisconsin. In addition, the effects on the electric transmission system caused by regulatory changes at the federal level continue to make planning for new transmission lines in Wisconsin uncertain. The only certainty is that many upgrades are needed, and probably at least one major, new extra-high voltage (345 kV) transmission line. Construction of three new coal units for the ERGS is most likely to contribute to or accelerate the need for these transmission line upgrades and new transmission construction.

Effect of proposed rebuilds of existing electric transmission lines

Using existing electric transmission line rights-of-way tends to minimize environmental effects, because land uses have adjusted to the barrier of the right-of-way and because the right-of-way is already disturbed to

some extent. The impacts of a rebuilt line tend to be incremental rather than wholly new. The exception is where an existing electric line is in a poor location, such as through a large, valuable natural area or the middle of potentially irrigable farm fields. There are no such lines included in the current transmission proposals.

The biggest impacts associated with rebuilding existing transmission lines are those associated with construction (e.g. noise or damage to a lawn or garden planted around a transmission structure) or construction access (e.g. compaction of soil on a farm field by construction equipment crossing the field). Construction impacts are usually temporary in nature.

Long-term effects of transmission construction include visual impacts and changes in electromagnetic fields (EMF). Taller transmission structures are more visible from a distance, but this may be an incremental visual effect. By raising the structures, or increasing the voltage or size of the conductor, the electromagnetic fields (EMF) below these transmission lines are likely to decrease. While there is no scientific consensus as to the effect (or lack of effect) of EMF on human health, some residents are concerned about issue. If existing structures are replaced by new structures, it's likely that the new structures would not be in the same location as the existing ones. This makes it possible for landowners to request minor changes to the location of structures to make them more compatible with surrounding land uses.

Effect of proposed substation work

The only proposed new substations would be at existing power plant sites (Oak Creek, Pleasant Prairie) or at an existing substation site (near an interstate interchange). Any environmental effects are likely to be minimal.

Table 11-41 Proposed construction work at electric substations[1]

Substation name	Property needs and potential environmental effects
Arcadian	Changes to this substation would likely fit within the existing substation fence.
Bain	Preliminary engineering indicates that the substation would have to be expanded to accommodate the new 345 kV ring bus. However, no facilities layout has been prepared from which to evaluate size or environmental impacts.
Bluemound	This 345 kV substation would likely be constructed immediately west of the existing substation's western fence on property currently being utilized by WEPCO's distribution training center.
Brookdale	Some expansion of the existing substation would be required although it is likely that there is enough land on the existing site for this expansion.[2]
Granville	Preliminary engineering indicates that no expansion is required.
Oak Creek	The existing 345 kV substation would be expanded to the west with dimensions of approximately 500 feet x 500 feet. This equates to approximately a 40% increase in overall size. ATC does not believe there to be any environmental concerns.[3]
Pleasant Prairie	No information was presented in the interconnection study reports for this substation.[4]
Racine	Preliminary engineering indicates that no expansion is required.
St. Martins	Preliminary engineering indicates no expansion is required.

1. Information provided by ATC in response to a PSC question concerning whether or not proposed substation work would require expanding the fenced area of the substation.
2. There is space on existing utility-owned property for this new substation. The property is located near the interchange of Highways 894 and I-43.
3. The location of this new substation on the site layout has changed since this answer. However, no environmental impact is expected.
4. Any changes to this substation would have minimal impact since the substation is located at an existing power plant.

Effect of a proposed new 4-mile transmission line

The proposed new transmission line is a 345 kV line that would extend from the substation on the OCPP/ERGS site to the Chicago and Northwest (C&NW) railroad track (It is listed as reinforcement 2a on Table 6-4). This new line would be one transmission circuit, (a set of three conductors) with three insulator strings. Some transmission structures carry two circuits (six conductors) on two sets of arms. At the C&NW railroad track, the circuit from this new line would continue on existing, two-circuit structures which are only carrying one operating circuit now.

Paralleling existing transmission lines

The most direct route from the Oak Street Substation to the rail track would parallel existing transmission line corridors. The first corridor contains two existing transmission lines (two sets of structures) and extends from the Oak Creek site to beyond Botting Road. The second corridor contains one existing line (one set of structures) and continues on to the railroad. Neither corridor has a right-of-way that is wide enough to accommodate a new transmission line.

On the first corridor, both transmission lines are already carrying two circuits each and there is not sufficient room on the existing right-of-way to locate a new set of structures. If ATC places the new line next to the existing right-of-way, the right-of-way would need to be expanded and ATC would need to remove two barns (located on the south side of the existing right-of-way). On the north side of the existing line are three houses that would probably need removal if a new power line were located on the north side of the existing corridor.

One alternative at this location is for ATC to change the design of the two transmission lines in order to provide room for one additional circuit on the existing right-of-way. Perhaps ATC could replace the existing structures with structures that would require less right-of-way, leaving room for a third structure or perhaps one of the transmission lines could be replaced with a new one that could carry three circuits. Until the ATC studies this problem, there is no definitive information about possible alternatives.

Route and potential environmental effects

Figure Vol. 2-4 shows the approximate, geographic, location of existing transmission lines in the project area. A series of photos, Figures 11-31 through 11-36 show features at various locations along the four-mile route. Although the right-of-way primarily passes through pastureland, cropped fields and old fields, there are several homes, and farmsteads with out-buildings located adjacent to the right-of-way. The two existing transmission lines leave WEPCO property and cross STH 32. Figure 11-31 shows that there is mostly open land on the south side of the existing right-of-way looking west from STH 32. A house is located near the north edge of the right-of-way near STH 32 (see Figure 11-32). Further west, there is a house and two barns on the south side, and one house on the north side of the right-of-way. As the lines approach Botting Road, another house and shed are located close to the north side (see Figure 11-33). After crossing Botting Road, there is another house close to the north edge of the right-of-way and an out-building adjacent to the south edge (see Figures 11-34 and 11-35). Between Botting Road and Foley Road, the two transmission lines separate; one of the lines turns due south, while the other continues to the west. This is shown in Figure 11-36. The proposed new line would follow the existing line that continues west. Near Foley Road, the existing line is routed around the edge of a small wetland, and crosses an old field. For the remainder of the route, the existing line crosses farm fields and the Root River.

In farmland, transmission lines can slow equipment that has to navigate around the structures and it can reduce the area of land in cultivation, especially if weeds grow around the base of the transmission pole and encroach further out into the field. Structures that are guyed can cause hazards for the safe operation of large farm equipment. Transmission lines can also produce noise during certain weather conditions. Loose hardware or loose connections between the conductors, insulators and the poles may cause a humming or buzzing sound under windy conditions. In fog and other damp weather conditions, a slight crackling sound may occur due to ionization of the moist air surrounding the wires. If the potential crossing of the Root River requires placement of structure(s) below the high water mark, ATC would need a permit from the DNR.

Effects of a new, long 345 kV transmission line

Information is available on two major transmission lines, each suggested as a possible solution for problems in the southeast area (and to enable the second SCPC unit of the proposed ERGS project to connect to the existing electric transmission system safely). One major line would connect the Pleasant Prairie power plant in Kenosha to the Libertyville substation in Illinois. This line would also connect with the Zion substation in Illinois on route to Libertyville. The second possible line would go from a new substation at Big Bend in Waukesha County to the Paddock substation in southern Rock County. Both of these lines are part of the ATC's 10-Year Transmission System Assessment, as reported in the Full Report dated August 2002. This document is available on the ATC's website at www.atcllc.com/Report.shtml Table 11-42 provides some information about resources located in routing study corridors for these two transmission line alternatives.

Figure 11-31 Open land on the south side of the transmission right-of-way looking west from STH 32

Figure 11-32 House located on the north side of the right-of-way looking west at STH 32

Figure 11-33 House and shed located on the north side of the right-of-way near Botting Road

Figure 11-34 House on the west side of Botting Road near the north edge of the right-of-way

Figure 11-35 Outbuilding located adjacent to the south edge of the right-of-way west of Botting Road.

Figure 11-36 One transmission line approaching Foley Road heading west - the second line (in the background) turns south

Table 11-42 Some information about resources affected by potential new 345 kV transmission lines in southeastern Wisconsin

Libertyville – Pleasant Prairie 345 kV	Big Bend – Paddock 345 kV
Length: about 30 miles	**Length: about 55 miles**
Potential conflicts with resources*	
Public lands: Numerous city, county, and state parks including Illinois Beach State Park, Chain O'Lakes State Park, Anderson Park, Red Arrow Park, Sunnyside Park, Beulah Park, Shiloh Park, and Prairie Springs Park.	Public lands: Numerous city, county, and state parks including Kettle Moraine State Forest, Big Foot Beach State Park, Muskego and Mukwonago County Parks, Carver-Roehl Park, Starin Park, LaMar Park, Memorial Park, Springs Park, Bong Recreation area, Ela Park, Phantom Glen Park, Denoon Park, and Heg Park. Numerous state wildlife areas and trails are located within the study area.
Sensitive resources: The Chiwaukee Prairie, Carol Beach Low Prairie, and Tobin Road Prairie state natural areas are found within the Wisconsin portions of the project area. The Van Patten Woods Forest Preserve, Wadsworth Savanna Forest Preserve, Waukegan Savanna Forest Preserve, Lyons Woods Forest Preserve, and Wedgewood Creek Forest Preserve, 15 natural areas within the Illinois Beach and Illinois Dunes area, and an additional 72 natural areas in the Chain O'Lakes-Fox River area in the portion of the project area in Illinois. The Des Plaines River watershed runs through much of the project area.	Sensitive resources: The Kettle Moraine State Forest, numerous state wildlife areas, and state natural areas including Beulah Bog, Lulu Lake, Bluff Creek Springs, Eagle Oak Openings, C.F Messinger Dry Prairie, Avon Bottoms, Scuppernong Prairie, Kettle Moraine Fens and Low Prairie, Muskego Park Hardwoods, Cherry Lake Sedge Meadow, and Karcher Springs among others are found within the project area.
Cultural Resources: The Third Avenue Historic District, Florence Parry Heide Home, Orson Welles Home, and the Library Park Historic District are among those cultural resources located in the Wisconsin portion of the project area.	Cultural resources: The Frances Wiggins Ford Farm, Old World Wisconsin, the General Atkinson Mound Group, Statesan Historic District, Governor Harvey Home, Clinton Village Hall, the Jefferson Prairie Norwegian Settlement, East Milwaukee Street Historic District, Prospect Hill Historic District, Conrad Cottages Historic District, the Grace and Pearl Historic District and many others, as well as numerous museums are located within the project area.
Corridor Sharing Opportunities**: State and County roads, railroad and existing transmission line corridors.	Corridor Sharing Opportunities**: State and County roads, railroad and existing transmission line corridors.

* Resources listed for the project's study area. The study area is defined as the length of the line multiplied by 30 percent of the line length for lines over 15 miles long.

** Corridor sharing means adjoining or overlapping the proposed transmission line right-of-way with the right-of-way of an existing linear corridor.